



ଓଡ଼ିଶା ସରକାର
ରାଜସ୍ୱ ଓ ବିପର୍ଯ୍ୟୟ ପରିଚାଳନା ବିଭାଗ
(ବିପର୍ଯ୍ୟୟ ପରିଚାଳନା)
GOVERNMENT OF ODISHA
REVENUE & DISASTER MANAGEMENT DEPARTMENT
(DISASTER MANAGEMENT)

By Fax/e-mail/Post
ରାଜୀବ ଭବନ, ଭୁବନେଶ୍ୱର-୭୫୧୦୦୧
RAJIV BHAWAN, BHUBANESWAR-751001

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TENDER CALL NOTICE

No. 738 /RDM (DM) DT. 03.02.2018

1. Sealed tenders are invited from the original equipment manufacturer (OEM) or their authorized agent/ dealer for purchase of different types of equipment as follows.

Sl.	Name of the item	Appropriate quantity (in nos.)
1	Life Jacket (Standard)	700
2	Life Jacket (Working)	300
3	Life Buoy (Ring)	200
4	Three stand 14 mm PP rope for mooring (35 meters)	100
5	Inflatable Rubber Boats (10 Men) & accessories	30
6	Outboard motor (2 stroke) with accessories	30
7	Air Pressure Provider	100
8	Repairing Kit for Boat	100
9	Repair Kit for OBM	100
10	Mini Fire Extinguisher for Flammable Liquid	50
11	Blower for inflation & deflation	100
12	OBM Carrier	100
13	SCUBA (Diving Equipment) sets with communication and BCD and accessories for under water salvage OPS	71
14	HP compressor for SCBA & SCUBA	38
15	Collapsed Structure Search Rescue (CSSR) tools, Equipment and Accessories	35
16	Concrete Cutter	38
17	Hydraulic Power Shore unit	35
18	Self-contained breathing apparatus	33
19	Branch cutting saw (electric)	93
20	Mountaineering equipment	95
21	Telescopic aluminium ladder (40 feet)	80
22	30 feet extension ladder	80
23	4.5 kg CO ₂ fire extinguisher	148
24	Forcible entry tools	40
25	Lifting bag	40

26	Rope deployment system	40
27	Chain saw (one man operated)	317
28	Chain saw (two man operated) with power pack	92
29	Lifting and Pulling Machine / Come along	102
30	Hydraulic Combi Tool with Power pack	18
31	Hydraulic Rescue Spreader with power pack	18
32	Hydraulic cutter with power pack	15
33	Gas cutting equipment with complete set	15
34	Bullet chain saw	180
35	Log carrier	200
36	Nylon rope (in Kg)	4350
37	Sisal rope 12 mm / 24 mm (in Kg)	2000
38	Fire axe	400
39	Axe	400
40	Crow bar	400
41	Pick axe	400
42	Spade	400
43	Traffic cones	600
44	Back-hoe loader cum excavator with rock breaker & accessories	16
45	Medical first responder kit (25 Men)	93
46	Medical first responder kit (50 MEN)	20
47	Folding standard stretcher	90
48	Spine board long with strap	100
49	Spine board short with strap	100
50	Blanket	200
51	Computer & multi-functional printer	15
52	Hand held Megaphone	80
53	Camera with Recording provision (1 general + 1 Thermal imaging)	20
54	Global positioning system (GPS)	50
55	Mobile Phone	40
56	Landline Phone	15
57	Fax machine	15
58	Air compressor with tyre inflator	15
59	Reciprocating pump-cum vehicle washer	15
60	Battery charger	19
61	Chain sharpener	38
62	Small Tools	78
63	Temporary shelter (flexi tent for 6 men)	80
64	U V treated polypropylene tarpaulin	350
65	Cooking utensils (in sets)	30
66	G.I. trunk	280

67	LED Hi-beam search light	280
68	3KVA Generators Sets with all Accessories	60
69	Extension cord and board	100
70	Range Umbrella	100
71	Camp Items Folding Table & Tools (in sets)	40
72	Office Furniture (in Sets)	15
73	Rescue Tender	1
74	Tractor Trailer (Hydraulic)	3
75	RCC Equipment Set	3
76	10 KVA Diesel generator	3
77	Bolt Cutter	15
78	Hydraulic Platform (sky lift) 42mt. height	1
79	Hydraulic Platform (sky lift) 32mt. height	1

2. The tender document with detailed technical specification may be seen from the official website of the Government of Odisha www.odisha.gov.in. The tender document may be obtained by depositing Rs.2000/- (Rupees two thousand) only between 11.00 A.M to 5.00 P.M on working days from the office of the undersigned at the address given below or downloading from the website and should be submitted duly signed in each page of the tender document with seal in token of having read understood and accepted the terms and conditions of the contract in the address given below. The tender should accompany a Demand Draft (A/C payee) of Rs.2000/- (Rupees two thousand) only payable at Bhubaneswar in favour of Special Relief Commissioner, Odisha, Bhubaneswar, towards the cost of tender paper in case of firms submitting the tender by downloading the tender document from the website. The authorities shall not be responsible for postal or any other delay.
3. Bids submitted other than the manner prescribed in the tender document shall be rejected.
4. The Tender Calling Authority has right to accept or reject the tender(s) without assigning any reason thereof. The bidder should drop the sealed tender packet in the "Tender Box" available in the office of the undersigned by the stipulated date and time at his own risk and responsibilities.
5. Schedule of receipt and processing of tender:

Sale of tender document.	05.02.2018 to 26.02.2018, 5.00 P.M.
Last date for receipt of tender document	26.02.2018, 5.00 P.M.
Pre bid doubt clearing meeting	12.02.2018 & 13.02.2018
Date for opening of tenders/Technical Bids	04.03.2018, 11.00 AM. onwards

Date of evaluation of samples by Technical Committee 10.03.2018, 11.00 A.M onwards.

6. The bidders are required to depute their representatives to remain present during opening of Tender/ Technical Bid and evaluation of samples by the Technical Committee as per dates mentioned above. If there is any change in the schedule for opening of tenders/Technical Bids or meeting of the Technical Committee for evaluation of samples, the same will be intimated to the bidders.
7. The tenders received after the stipulated date shall not be taken in to consideration and shall be summarily rejected.
8. The tender calling authority has the right to cancel or alter quantity of any of above item without assigning any reason thereof.
9. **Address of the Tender Calling Authority.**

Special Relief Commissioner &
Commissioner -cum- Secretary to the Government,
(Disaster Management),
Revenue & Disaster Management Department,
Ground floor,Rajiv Bhawan,
Bhubaneswar-751001
FAX-0674-2534177
E-mail:- srcodishagov@gmail.com

**Signature of the Bidder
with seal**

-Sd/-
Additional Relief Commissioner &
Special Secretary to government



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(ବିପର୍ଯ୍ୟୟ ପରିଚାଳନା)
GOVERNMENT OF ODISHA
REVENUE & DISASTER MANAGEMENT DEPARTMENT
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TENDER CALL NOTICE

No. 738 /RDM (DM) DT. 03.02.2018

**Tender Document for procurement of different types of equipment for ODRAF/
Odisha Fire Striking Force during the year 2017-18**

1. Sale of tender document: 05.02.2018 to 26.02.2018, 5.00 P.M.
2. Last date for receipt of tender document: 26.02.2018, 5.00 P.M.
3. Pre bid doubt clearing meeting: 12.02.2018 & 13.02.2018
4. Date for opening of tenders/Technical Bids: 04.03.2018, 11.00 AM. onwards

A.GENERAL CONDITIONS OF THE CONTRACT.

1. The bidder/supplier should either be an Original Equipment Manufacturer (OEM) or their authorized agent /dealers authorized to sell, supply and service their products. The latest authenticated documentary proof of this shall be submitted. The proof submitted earlier in some other context shall not be treated as valid and sufficient.
NOTE: As a proof of authorized dealer the bidder should furnish the copy of agreement made with OEM in that respect.
2. All the information as called for in the tender document should be submitted truly, clearly, legibly, transparently, unambiguously and without the use of abbreviations. It shall be submitted in English.
3. All the crucial figures, like, rates and amount should written in figures followed by words in a bracket. When there is a difference between the rates in figures and in words then the rate quoted by the bidders in words shall be taken into account.

4. There shall be no over writing in the tender document and other papers submitted. All the addition, alterations, deletions and cuttings should be initialled with rubber stamp (or seal) by the same person, who signs the tender document. Failing so, the tender may be rejected.
5. The tenders (also call bids) not submitted in prescribed format in the prescribed manner, shall be rejected at the risk and responsibility of the bidder.
6. All the rates and amounts shall be quoted in Indian Rupees (INR) and shall be presumed to be in Indian Rupees unless specifically permitted to be quoted otherwise in these tender documents. .
7. The rates quoted shall be valid for a period of one year counted from last date of receipt of bids/tenders.
8. Each page of this tender document should be signed by the bidder with seal in token having read, understood and accepted the terms and conditions of this contract.
9. For the Companies/firms and Corporation making the bids, the tender document shall be signed by the Managing Director. If it is otherwise, the authority to sign the tender papers on behalf of the company/firms/Corporation shall be enclosed. In case of partnership Firm, it shall be signed by the active partner. In case of a Proprietary Firm, the tender document shall be signed by the proprietor.
10. "Legal Status" of a bidder shall mean either proprietorship or partnership of Private/Public limited Company or otherwise (to be specified) as the case may be.
11. All the documents and papers submitted with the bid should either be in English or in Oriya and shall be authenticated under the seal and signature of the bidder unless specified otherwise in this tender document. If the documents are in any other language, a true translation in English, duly certified by an independent person of repute, shall be submitted.
12. All the promotional and technical literature of the products intended to be supplied should be submitted for proper appreciation of the bid, whether or not specifically call for in this tender documents. This literature should also be in English.
13. Submission of more than one competitive bid by the same firm in response to the tender call notice is prohibited. All such bids, except one, will be cancelled at the discretion of the authority calling the bids. A bidder may, however, offer in his bid more than one product of the same Original Equipment Manufacturer (OEM) if in his opinion, all such products meet the prescribed technical specifications. In that case, he should submit "Technical Bid" of all such products separately but in the same

prescribed format, in the same sealed single cover. Separate "Financial Bids" should also be submitted similarly in the same sealed single cover (see below for the meaning of sealed cover).

NOTE A bidder cannot bid the same item for more than one OEM firm.

14. The bidder may use separate piece of paper, where the space provided in the formats in this tender document for submission of information, is not sufficient. The information in the separate sheet of paper shall be as per prescribed format and each page should be serial numbered and duly authenticated.
15. All the information submitted or supplied in the formats in this tender document shall be presumed to be true to the best of knowledge of the bidder.
16. The firms not having the GST Registration shall not be eligible for submitting the bids, Firms blacklisted shall also not be eligible for participating in the Bid.
17. The GST Registration certificate / proof for filing return on GST (last month/last quarter) and Income Tax Clearance Certificate (ITCC) shall be submitted for the current financial year duly attested by a Gazetted Officer.
18. Earnest Money Deposit (EMD) shall be in the form of Demand Draft of a scheduled Bank payable at Bhubaneswar in favour of Special Relief Commissioner, Odisha, Bhubaneswar. EMD shall be returned immediately after the rejection of a Bid. The Demand Draft shall be returned in original with or without reverse endorsement as required for the refund. EMD of the successful bidders shall be retained till the materials / articles are successfully delivered as ordered. After that it shall be returned in the same manner as in the case of unsuccessful bidders.
19. This tender document has prescribed a two bid format for submitting the offers. It contains the "TECHNICAL" and 'FINANCIAL' bid formats. Both the bids shall be submitted in separate sealed cover identified as 'TEHCNICAL' or 'FINANCIAL' bid after detaching their formats from this tender document. Both the sealed covers, the remaining part of this tender document and all the other papers/documents should be put inside a bigger sealed cover and shall be delivered as per conditions published in the tender call notice. All the sealed covers shall have boldly written with the name of the supplier/bidder, the tender call notice number and the last date for submission.
20. The tenders or the bids can be sent by post or courier as well. However, the authorities shall not be responsible for the postal and other delays in receipt of bids.
21. If the last date for submission of the tender/bid turns out to be a holiday, it will automatically be extended to next working day.

22. The tender calling authority shall make arrangements in his office for issuing a written acknowledgement, under proper seal and signature of the filled in tenders, provided those are submitted on or before the due date. The acknowledgement receipt shall mention, among others, the tender call notice number.
23. A bid submitted cannot be withdrawn. The bidder or his authorized representative (one person only) will be allowed to be present at the time of opening of tenders. They will not participate in the discussions. Clarifications sought, if any, may be provided by them.
24. All or any of the tenders (or bid) submitted can be rejected without assigning any reason thereof. No claim, whatsoever, shall be admissible for; the alleged loss/damage suffered by the bidders on account of such rejections.
25. The sealed Tenders and Technical Bids shall be opened by the Technical Committee in 1st stage. The documents like EMDs, GST Registration/Clearance certificate/Income tax clearance certificate e.t.c. shall be verified to ensure that the bidders have fulfilled all the prescribed criteria and conditions of this tender document other than technical specifications of the products.
26. All the products, failing to fulfil the prescribed technical specifications, will be rejected. Decision of the Technical Committee in this respect shall be final and binding.
27. Notwithstanding an offered product meeting the prescribed technical specifications, it may be rejected, if the bidder fails to successful demonstration before the Technical Committee.
28. 'Financial Bids' shall be opened only in those cases, where one or more of the offered products have fulfilled the prescribed technical specifications. No preference or extra payment shall be admissible for the superior technical specifications or quality of the like if any.
29. All the prices quoted shall be FOR Destination basis. The list for the FOR destinations (tentative) of the equipment are given at Annexure-B. This means that the prices shall include the cost of delivery at Destination point. Final list of FOR destinations shall be communicated alongwith the order of supply. No additional cost for change in FOR destination shall be entertained.
30. The authorities are not bound to accept the lowest Financial Bid.
31. The order for supply may be placed on the successful bidders but the technical specifications (or quality requirements) for the purpose of supply shall be those,

which were offered and accepted by the Technical Committee and not those specified in the tender document.

32. On delivery, the supplies or products shall be inspected to verify the quantity and to see whether those are in accordance with the technical specifications (or quality requirements) for which the order was placed. If it turns out to be otherwise the acceptance of delivery shall be refused at the risk and responsibility of the supplier. Further, the articles found damaged shall not be counted as accepted until repaired or replaced to the satisfaction of the authority.
33. Short deliveries may not be accepted. All the items ordered must be supplied in full for claiming even the part payment.
34. All the transit risks shall be the responsibility of the supplier. The supplier would make suitable arrangement on his own for passing the border, check gates of Odisha.
35. User manuals of the product shall be supplied without being asked for or even if it is not mentioned in the supply order. Moreover, it should be in English.
36. Failure to supply the order in full within the stipulated period or supply of substandard goods may lead to forfeiture of EMD and blacklisting of the suppliers.
37. The supplier shall submit an undertaking (in the form of affidavit) given by him or the OEM committing to supply spare parts for the maintenance of the supplied items for a period at least 24 months from the date of supply.
38. The supplier shall give a performance warranty for a minimum period mentioned in the special condition or one year of the contract. 5% of the amount of the order (excluding taxes) as mentioned in the special conditions of the contract shall be deposited in shape of Demand Draft or Bank Guarantee duly pledged in favour of Special Relief Commissioner, Odisha, Bhubaneswar and shall be returned after the performance warranty period is over. The said amount may be forfeited partially or fully for failure to fulfil the terms and conditions of supply and post sales commitment / obligations. The Bank Guarantee should be enforceable and payable at Bhubaneswar.
39. The bidder must submit in a separate paper mentioning “complied or not complied” against each column of the Tender Specification given in the Tender document.
40. Terms and conditions of this tender document cannot be negotiated for variation without obtaining the prior approval of the Govt.

41. All the clarifications sought from the bidders/suppliers on technical specifications of the products or otherwise shall be promptly submitted in a transparent and unambiguous manner.
42. Entire tender document duly filled in shall be treated as part of the contract agreement for supplies in case of the successful bidders.
43. All the disputes shall be subject to jurisdiction of Civil Courts situated at Bhubaneswar.
44. The bidder shall submit all required documents along with tender. Under no circumstances a bidder would be allowed to make any addition/ alteration if any, related to tender or to submit required documents after receipt of the tender by the tender calling authority.

-Sd/-

Signature of the Bidder with seal

Additional Relief Commissioner &
Special Secretary to government

TECHNICAL BID

SL. NO.	NAME OF THE ITEMS	WHETHER PRODUCTS OFFERED FULFILLS THE DETAILED TECHNICAL SPECIFICATIONS KINDELY ANSWER YES OR NO ONLY.	OFFERED SPECIFICATIONS AND DETAILS OF VARIATIONS IF ANY.
1	2	3	4

Signature & Seal of the Bidder

FINANCIAL BID

TENDER CALL NOTICE NO.-.....

NAME OF THE ITEMS (PRICE PER UNIT IN INDIAN RUPEES)

1. Price including all the duties & levies :
2. Central GST :
3. State GST
4. Other charges (To be specified) :
5. Total Unit price of the Item :
6. Total amount payable for supply of :
entire quantity of the item mentioned
in the tender document. :
7. Name of the Original Manufacturers and :
brand name or trademark of the item

Signature & Seal of the Bidder.

GENERAL BID FORM

(TENDER CALL NOTICE NO.-.....)

1.	Name, Full Address, Fax No. Telephone no. & E-Mail of the firm.		
2.	Legal status of the firm		
3.	Items for which you have submitted the Bid		
4.	For which of the items above you are the ORIGINAL EQUIPMENT MANUFACTURER (OEM)		
5.	Give the location and Address of your Factory.		
6.	For the items listed at (3) above where you have submitted the bid but you are not the O.E.M., indicate against each the names of the O.E.M		
7.	Kindly confirm by writing 'yes' or 'no' only that you have been authorized by the respective O.E.Ms either as dealer or as sale, supply and servicing agent in respect of the items you are not the OEM		
8.	Which of the items, you have submitted the bids for, will be fully or substantially imported. Indicate the country to be imported from.		
9.	Have you enclosed the EMD? If yes, mention the amount and its identifying details.		
10.	Have you enclosed all the documents and papers called for in this tender document? Kindly enclose a list(use a separate sheet of paper)		

11.	If the answer to (10) above is 'No' which is the documents/document have not been enclosed.(Kindly enclose a list of such documents/papers).Use a separate sheet of paper if necessary.	
12.	Do you have a post sales servicing, centre in Odisha? If yes, give its name, full address, Fax and Telephone numbers.	

Seal & Signature of the Bidder

TENDER CALL NOTICE NO:-.....**SPECIAL CONDITION OF THE CONTRACT**

1. The Special Conditions given here shall prevail over the General Conditions.
2. The tender document shall accompany with Earnest Money Deposit (EMD) at the rate quoted at Col-6, of the statement under Para-3 without which tender shall be rejected. The EMD deposited instrument should be available outside the sealed covers of "Technical" and "Financial" Bid. (EMDs available in the Technical Bid also be accepted)
3. Sealed Bids in this tender document have been invited for the supply of the items listed below. The approximate quantity required and time for supply has been mentioned against each. The detailed technical specifications of each item are available in the Annexure - 'A'.

Sl.	Name of the Equipment	Appropriate quantity (in nos.)	Technical specification	Time period for supply	EMD Value (in Rs)
1	2	3	4	5	6
1	Life Jacket (Standard)	700	Technical Specification as Annexure-A	90 days from receipt of supply order	31500
2	Life Jacket (Working)	300	Technical Specification as Annexure-A	90 days from receipt of supply order	18000
3	Life Buoy (Ring)	200	Technical Specification as Annexure-A	90 days from receipt of supply order	12000
4	Three stand 14 mm PP rope for mooring (35 meters)	100	Technical Specification as Annexure-A	90 days from receipt of supply order	2000
5	Inflatable Rubber Boats (10 Men) & accessories	30	Technical Specification as Annexure-A	120 days from receipt of supply order	105000
6	Outboard motor (2 stroke) with accessories	30	Technical Specification as Annexure-A	120 days from receipt of supply order	60000
7	Air Pressure Provider	100	Technical Specification as Annexure-A	90 days from receipt of supply order	15000
8	Repairing Kit for Boat	100	Technical Specification as Annexure-A	90 days from receipt of supply order	5000
9	Repair Kit for OBM	100	Technical Specification as Annexure-A	90 days from receipt of supply order	5000
10	Mini Fire Extinguisher for Flammable Liquid	50	Technical Specification as Annexure-A	90 days from receipt of supply order	1000

Sl.	Name of the Equipment	Appropriate quantity (in nos.)	Technical specification	Time period for supply	EMD Value (in Rs)
1	2	3	4	5	6
11	Blower for inflation & deflation	100	Technical Specification as Annexure-A	90 days from receipt of supply order	10000
12	OBM Carrier	100	Technical Specification as Annexure-A	90 days from receipt of supply order	20000
13	SCUBA (Diving Equipment) sets with communication and BCD and accessories for under water salvage OPS	71	Technical Specification as Annexure-A	120 days from receipt of supply order	816500
14	HP compressor for SCBA & SCUBA	38	Technical Specification as Annexure-A	120 days from receipt of supply order	133000
15	Collapsed Structure Search Rescue (CSSR) tools, Equipment and Accessories	35	Technical Specification as Annexure-A	120 days from receipt of supply order	1400000
16	Concrete Cutter	38	Technical Specification as Annexure-A	90 days from receipt of supply order	190000
17	Hydraulic Power Shore unit	35	Technical Specification as Annexure-A	90 days from receipt of supply order	245000
18	Self-contained breathing apparatus	33	Technical Specification as Annexure-A	90 days from receipt of supply order	49500
19	Branch cutting saw (electric)	93	Technical Specification as Annexure-A	120 days from receipt of supply order	92070
20	Mountaineering equipment	95	Technical Specification as Annexure-A	120 days from receipt of supply order	475000
21	Telescopic aluminium ladder (40 feet)	80	Technical Specification as Annexure-A	90 days from receipt of supply order	24000
22	30 feet extension ladder	80	Technical Specification as Annexure-A	90 days from receipt of supply order	32000
23	4.5 kg CO ₂ fire extinguisher	148	Technical Specification as Annexure-A	90 days from receipt of supply order	8880
24	Forcible entry tools	40	Technical Specification as Annexure-A	90 days from receipt of supply order	200000

Sl.	Name of the Equipment	Appropriate quantity (in nos.)	Technical specification	Time period for supply	EMD Value (in Rs)
1	2	3	4	5	6
25	Lifting bag	40	Technical Specification as Annexure-A	90 days from receipt of supply order	800000
26	Rope deployment system	40	Technical Specification as Annexure-A	90 days from receipt of supply order	400000
27	Chain saw (one man operated)	317	Technical Specification as Annexure-A	120 days from receipt of supply order	380400
28	Chain saw (two man operated) with power pack	92	Technical Specification as Annexure-A	120 days from receipt of supply order	138000
29	Lifting and Pulling Machine / Come along	102	Technical Specification as Annexure-A	120 days from receipt of supply order	204000
30	Hydraulic Combi Tool with Power pack	18	Technical Specification as Annexure-A	90 days from receipt of supply order	162000
31	Hydraulic Rescue Spreader with power pack	18	Technical Specification as Annexure-A	90 days from receipt of supply order	162000
32	Hydraulic cutter with power pack	15	Technical Specification as Annexure-A	90 days from receipt of supply order	135000
33	Gas cutting equipment with complete set	15	Technical Specification as Annexure-A	90 days from receipt of supply order	75000
34	Bullet chain saw	180	Technical Specification as Annexure-A	120 days from receipt of supply order	360000
35	Log carrier	200	Technical Specification as Annexure-A	120 days from receipt of supply order	20000
36	Nylon rope (in Kg)	4350	Technical Specification as Annexure-A	90 days from receipt of supply order	13050
37	Sisal rope 12 mm / 24 mm (in Kg)	2000	Technical Specification as Annexure-A	90 days from receipt of supply order	10000
38	Fire axe	400	Technical Specification as Annexure-A	90 days from receipt of supply order	6000
39	Axe	400	Technical Specification as Annexure-A	90 days from receipt of supply order	4000
40	Crow bar	400	Technical Specification as Annexure-A	90 days from receipt of supply order	4000

Sl.	Name of the Equipment	Appropriate quantity (in nos.)	Technical specification	Time period for supply	EMD Value (in Rs)
1	2	3	4	5	6
41	Pick axe	400	Technical Specification as Annexure-A	90 days from receipt of supply order	4000
42	Spade	400	Technical Specification as Annexure-A	90 days from receipt of supply order	4000
43	Traffic cones	600	Technical Specification as Annexure-A	90 days from receipt of supply order	18000
44	Back-hoe loader cum excavator with rock breaker & accessories	16	Technical Specification as Annexure-A	120 days from receipt of supply order	400000
45	Medical first responder kit (25 Men)	93	Technical Specification as Annexure-A	90 days from receipt of supply order	186000
46	Medical first responder kit (50 MEN)	20	Technical Specification as Annexure-A	90 days from receipt of supply order	60000
47	Folding standard stretcher	90	Technical Specification as Annexure-A	90 days from receipt of supply order	9000
48	Spine board long with strap	100	Technical Specification as Annexure-A	90 days from receipt of supply order	10000
49	Spine board short with strap	100	Technical Specification as Annexure-A	90 days from receipt of supply order	10000
50	Blanket	200	Technical Specification as Annexure-A	90 days from receipt of supply order	1000
51	Computer & multi-functional printer	15	Technical Specification as Annexure-A	90 days from receipt of supply order	7500
52	Hand held Megaphone	80	Technical Specification as Annexure-A	90 days from receipt of supply order	24000
53	CAMERA WITH RECORDING PROVISION (1 general + 1 Thermal imaging)	20	Technical Specification as Annexure-A	120 days from receipt of supply order	85000
54	Global positioning system (GPS)	50	Technical Specification as Annexure-A	120 days from receipt of supply order	25000
55	Mobile Phone	40	Technical Specification as Annexure-A	90 days from receipt of supply order	4000

Sl.	Name of the Equipment	Appropriate quantity (in nos.)	Technical specification	Time period for supply	EMD Value (in Rs)
1	2	3	4	5	6
56	Landline Phone	15	Technical Specification as Annexure-A	90 days from receipt of supply order	75
57	Fax machine	15	Technical Specification as Annexure-A	90 days from receipt of supply order	1500
58	Air compressor with tyre inflator	15	Technical Specification as Annexure-A	90 days from receipt of supply order	15000
59	Reciprocating pump-cum vehicle washer	15	Technical Specification as Annexure-A	90 days from receipt of supply order	15000
60	Battery charger	19	Technical Specification as Annexure-A	90 days from receipt of supply order	9500
61	Chain sharpener	38	Technical Specification as Annexure-A	90 days from receipt of supply order	19000
62	Small Tools	78	Technical Specification as Annexure-A	90 days from receipt of supply order	15600
63	Temporary shelter (flexi tent for 6 men)	80	Technical Specification as Annexure-A	90 days from receipt of supply order	560000
64	U V treated polypropylene tarpaulin	350	Technical Specification as Annexure-A	90 days from receipt of supply order	24500
65	Cooking utensils (in sets)	30	Technical Specification as Annexure-A	120 days from receipt of purchase order	15000
66	G.I. trunk	280	Technical Specification as Annexure-A	90 days from receipt of supply order	42000
67	LED Hi-beam search light	280	Technical Specification as Annexure-A	90 days from receipt of supply order	56000
68	3KVA Generators Sets with all Accessories	60	Technical Specification as Annexure-A	120 days from the receipt of supply order	150000
69	Extension cord and board	100	Technical Specification as Annexure-A	90 days from receipt of supply order	5000
70	Range Umbrella	100	Technical Specification as Annexure-A	90 days from receipt of supply order	2000
71	Camp Items Folding Table & Tools (in Sets)	40	Technical Specification as Annexure-A	90 days from receipt of supply order	2000

Sl.	Name of the Equipment	Appropriate quantity (in nos.)	Technical specification	Time period for supply	EMD Value (in Rs)
1	2	3	4	5	6
72	Office Furniture (in sets)	15	Technical Specification as Annexure-A	90 days from receipt of supply order	7500
73	Rescue Tender	1	Technical Specification as Annexure-A	90 days from receipt of supply order	200000
74	Tractor Trailer (Hydraulic)	3	Technical Specification as Annexure-A	90 days from receipt of supply order	36000
75	RCC Equipment Set	3	Technical Specification as Annexure-A	90 days from receipt of supply order	28500
76	10 KVA Diesel generator	3	Technical Specification as Annexure-A	90 days from receipt of supply order	36000
77	Bolt Cutter	15	Technical Specification as Annexure-A	90 days from receipt of supply order	45000
78	Hydraulic Platform (sky lift) 42mt. height	1	Technical Specification as Annexure-A	150 days from the receipt of supply order	800000
79	Hydraulic Platform (sky lift) 32mt. height	1	Technical Specification as Annexure-A	150 days from the receipt of supply order	700000

4. The quantities mentioned above are subject to variations. The rates quoted per Unit shall continue to be valid even if the quantities of items mentioned above are varied.
5. It shall not be necessary to bid for all the items above.
6. The bidder shall submit along with this tender document a list of names, complete address, Telephone/FAX number of the customers to whom, the item, for which the bid has been submitted, have been supplied and installed in last three years in India, if any. A clear, unambiguous statement shall be made if an item has not been sold anywhere in India so far.
7. The selected firm should supply the order in full within the stipulated period as detailed at Col-5, Para-3 above. Failure to supply the order in full or supply of substandard goods may lead to forfeiture of EMD and blacklisting of the suppliers. If at all the delivery is allowed to be accepted after the due date, Liquidated Damages (LD) @ 0.5% of the total amount of order (excluding taxes) per week or part thereof

shall be charged from the supplier, however, that the L.D. shall not exceed 5% of the amount of order.

8. The supplies shall be delivered at destination detailed at Annexure B.
9. Pre-delivery inspection is required for the equipment listed at "Annexure C". The selected firm shall arrange pre-delivery inspection of the equipments by representative of the Tender calling Authority at his own cost before despatch. The travelling and accommodation cost shall be borne by the selected firm..It is obligatory to the supplier to provide all the assistance and equipment for the inspection of the equipment.
10. The supplier shall also at his own cost arrange for checking of items at delivery point by demonstrating operations and making arrangements to establish genuineness and compliance of items with required technical specification stated in Annexure A. The supplier shall obtain a certificate from the consignee (authorized representative of Tender calling Authority) regarding date of commissioning of the items and date of delivery of the equipment.
11. Before placement of Final supply order, the selected firm shall have to deposit 5% of the cost of stores excluding taxes in shape of Demand draft or Bank Guarantee duly pledged to the Special Relief Commissioner, Odisha, Bhubaneswar which will be returned back after performance warrantee period is over.
12. All the supplies made shall be subject to a minimum period of one year warrantee or manufacturer warranty period whichever is more.
13. The supplier shall repair or replace at his own cost any component of the supplies that may go out of order during the warrantee period. The repair and replacement shall as far as possible be carried within the premises, where the equipment has been kept. If, however, it is necessary to take the equipments to the workshop of the supplier, it must be repaired and reinstalled successfully in its premises within a period of 15 days. Failing so, replacement equipment in working condition shall be supplied till the return of the equipment. The cost of transportation including loading and unloading shall be borne by the supplier.
14. Other things being equal, preference shall be given to a bidder, who has opened his sale and service centre in Odisha.
15. If an equipment or supply goes out of order within the warranty period and the supplier is informed about it, it must be attended to within 48 hours counted from the time the service call is placed.

16. No advance shall be paid. 100% of the payment will be made on delivery of supplies after successful installation and demonstration.
17. The firms located outside the State of Odisha should include their transportation charges with the basic price.
18. If required by the Technical Committee, the bidder must attend the Technical Committee with samples for evaluation/ demonstration purpose. In such circumstances the offer without sample will be not taken into consideration.
19. Before undertaking the final contract the successful tenders will have to enter into an agreement with the department at their own cost in Govt. stamp paper.

Seal & Signature of the Bidder

-Sd/-

Additional Relief Commissioner &
Special Secretary to government

ANNEXURE – A
Specification of Equipment

SI.No.	Equipment	Specification
1	Life Jacket (Standard)	<p>IRS / SOLAS approved Specification confirmed with 31504 grade and Regulations Adult Life Jacket with latest amendments. The Life Jackets should be precisely designed and made from high quality tough and virtually water impenetrable polyethylene fabric and in compliance with industry standard. Buoyant material used should be water proof Polyethylene foam with water absorption as 0.3% in 24 hours</p> <ul style="list-style-type: none"> • Floatability: 16.00 kg +(plus) in fresh water • Have capacity to float a person water 90 kg and above for 24 hours • It should keep the head of a unconscious person minimum 120mm above the water level • There should be heavy duty nylon adjustable belts (1.5” wide)for tightening and specially designed with Velcro fitment for easy/quick donning in an emergency. Chemically resistant to sea water and petroleum products. Retro- reflective Tape SOLAS Approved of 2”x 4” on front and rear side at 4 suitable places with easily washable buckle/Xip. • The colour of life jacket should be orange • Each Life jacket should be fitted with a plastic whistle firmly secured by a lanyard • weight of life jackets should have low weight. • The model no and the year of manufacturer, buoyance and details of approving authority should be printed on the life jackets. Each life jacket should have mark of testing/inspecting authority on the valise and a permanent marking date of expiry. • Type Tests (Approval): Type Test shall be carried out as per LSA code and SOLAS Specification (latest) • Life jackets shall be provided with marking “ODRAF” on its back.
2	Life Jacket (Working)	<p>US Coast Guard Certification, through testing by Underwriters Laboratories (UL) Type V Personal Floatation Device (PFD).minimum of 10 kg of flotation, Front Zip adjustability to fit chest sizes from 30 to 58 inches. with box-stitched stress points, reinforced shoulder straps and a 500 denier Cordura shell,</p> <ul style="list-style-type: none"> • Two huge front pockets stretch to hold anything from a GPS to VHF. Quick release buckles with adjustable nylon webbing secure the pockets shut. • Quick-release rescue belt, with stainless steel ring, for swift water rescue techniques. • Three lash tabs on the front for a knife, whistle. On the back there’s an additional lash tab for a strobe, and a chemical light holder, for visibility in low light and night operations. • Long strips of reflective tape on the front and back of the jacket increase visibility. • Webbing loops for leg straps add extra security. Universal Plus sizing will fit chest sizes between 30 and 58 inches, with 8 adjustment points to be ensures a secure fit.

3	Life Buoy (Ring Type)	<p>IRS / SOLAS approved Specification and Regulations Life Buoy Ring type with latest amendments. Highly visible orange colour (UV protected) and free from any type of metal parts.</p> <ul style="list-style-type: none"> • The life buoys shall be of annular ring type, made of unicellular plastic materials having an outer diameter of 71.34 cm inner diameter 44.5 (Variation range from +1cm to -0.05cm). • The life buoy should have a grab line of not less than 5.5 meters. 10-12 mm thickness, 38 mm circumference having a breaking strength of above 500 kg. It shall be made of polypropylene or other suitable buoyant type synthetic materials. • Floatability should be more than 14.5 kg. and weight 2.3 kg to 3.5 kg. • The life buoy should be not proof and be resistant to deterioration from sunlight exposure, oil or oil products and show no melting or burning after exposure to fire for two seconds. The life buoy should show no damage after being dropped 3 times from a height of 2 meters on concrete floor and cracks or any permanent deformation when dropped into the water from a height of 30 meters. • The life buoy shall be fitted with approved retro-reflective tape with a minimum of 5 cm (2 inches) width around the life buoy with four locations spaced equally around the circumference of the lifebuoy. The lifebuoy should be provided with poly propylene rope of 9.5 mm & not less than 4 times of OD of the body of the lifebuoy.
4	3 strand 14mm PP Rope (35 Meters)	<p>Three strand 14mm Dia PP Rope having breaking strength of more than 3050 Kgf.</p> <ul style="list-style-type: none"> • High strength and Low weight • Highly resistance to acid and alkalis • Float in water , does not absorb water • Low elongation and better knot ability
5	Inflatable Rubber Boat (10 Men)	<p>Inflatable Rubber Boats made of Nylon / Polyester fabric coated with Hypalon rubber on the outside & polychloroprene inner side, meeting ISO 15372.</p> <ul style="list-style-type: none"> • Material Density- 1500 GSM, 1670 Dtex-Hypalon / Neoprene coated fabric, as per latest ISO 6185-3 standard. • Dimension: Length overall: 4.70mtr. to 5.0 mtr. Breadth Overall: 2.00M (Dimension variation \pm 0.5% maximum) Buoyancy Collar Diameter: 0.50 to 0.55 meter, • Boat Carrying capacity:- 10-12 persons or 1000kg Cargo • Buoyancy Chamber: Minimum 4+1 keel. • Floor Board: Marine Grade Aluminium Flood Board, Interlocking type, so as to form a rigid floor that does not vibrate/ chatter at higher speed. Joiners and Stringers to be of Marine Grade Imported Aluminium only. • Transom: Heavy duty rigid transom fitted with OBM mounting plate (SS-304). Height of transom should be 0.40 m suitably strengthen to fit 40 Hp (2 stroke) OBM. • Reinforcement: Heavy duty rubbing strakes underneath keel and all around the tube, Anti chafing strips on top buoyancy, OBM clamp plate in transom

		<ul style="list-style-type: none"> • Fittings: Life Line- Inside & Outside <ul style="list-style-type: none"> Towing Hook - 2 Lifting Hook - 4 Carrying Handle - 6 Storage Pocket - 2 Drain Plug - 2 • Accessories: Foot Pump (Heavy duty) 2 <ul style="list-style-type: none"> Anchor 1 Anchor Rope 30 mtr Oars 2 Boat Valise 1 <p>(Made of tear resistant coated nylon fabric)</p> <ul style="list-style-type: none"> Repair Kit 1 Lifebuoy 2 Life jacket 10 <ul style="list-style-type: none"> • Approval: Drawing, design & building of the boat to be approved by IRS (Indian Register of Shipping), RINA or any other IACS member & certificate of Inspection by IRS to be provided for each boat at the time of delivery.
6	Out Board Motor (Two stroke)	<ul style="list-style-type: none"> • OBM Engine: 40 H.P.2 stroke Mercury/ Mariner/ Johnson/ Evinrude or Equivalent Make, petrol operated (two stroke), rope start, manual drive and fuel efficient with accessories two paddles system for emergency rowing. • HP/ Kw: 40/29.8 • Displacement (CID/CC: 42.5/697 • Cylinder Configuration:1-3 • Full Throttle RPM: 5000-5700 • Fuel Induction System: Loop-charged (3 carb) • Starting: Manual • Steering: Tiller • Shaft Length:15"381mm, 20"/508mm • Gear case Ratio: 1.85:1 • Dry Weight: 72-75 Kg • Bore and Stroke:68X64 • Trim System: Manual • Oil Injection: Pre Mix • Accessories: Fuel Tank - 1no <ul style="list-style-type: none"> ○ Fuel attachment – 1 Set ○ Repair Kit - 1no
7	Air Pressure Provider (For Boat)	<p>One set consist of 2nos of double Action hand Pump Made from noncorrosive, lightweight plastic; disassembles to allow inspection and maintenance, delivers continues stream of air on both up and down strokes.</p> <p>Universal valve fitting compactable to the valves of 10 men Boat. with 4 locking valve adapters</p> <ul style="list-style-type: none"> • With accordion – style hose stretch up to 5 ft • High pressure output, rated to nominal 14.7 PSI or 1 atmosphere, with volume of 2 litre / stroke, provides continuous air flow through the large, flexible hose, which has locking ends • Features both inflation and deflation capabilities

8	Repairing Kit for Boat	<p>Repair Kit for Boat consist of</p> <ul style="list-style-type: none"> • Rubber patches-10nos. • PVC Primer & Cleaner • Adhesive-1/2 Kg. for hypalon /PVC • Hot Blower for removing rubber patch- 1 • Roughening Tool-2nos., • Air Valves-2nos. • Valve replacement tools-1 • Sand Paper- • Removal marker Pen/pencil-1 • Masking tape 1 roll • Short/stiff paint or glue brush-1 • Seam roller-1 						
9	Repair kit for OBM	<p>The repairing kit for OBM 40 HP 2 stroke consist of</p> <ul style="list-style-type: none"> • Hose Clamp-4nos., • OBM Impeller-1 nos., • Impeller Key-2 nos. • Spark Plug-2 nos., • Starting Rope-2 nos. • Carburettor repair kit-1no., • Water Pump repair Kit-1no. <p>Universal round muff cups motor engine flushing kit- 1 set</p>						
10	Mini Fire Extinguisher for Flammable liquid	<ul style="list-style-type: none"> • STORED PRESSURE (ABC) TYPE Fire Extinguisher designed as per IS 15683:2006 complete with Brass VALVE with CE Approval and safety release and Auto pressure shut off, all the fittings and accessories with ISI Mark and CE Approved suitable for 'A' 'B' 'C' Class of fire with ISI mark powder confirming to IS:14609 with pressure gauge, discharge hose and nozzle. The Extinguisher components should be tightened with a torque of 8 NM. <table border="1" data-bbox="539 1384 1444 1659"> <tr> <td data-bbox="539 1384 778 1464">Anti corrosive treatment</td> <td data-bbox="778 1384 1444 1464"> <ul style="list-style-type: none"> • Automatic 8 Tank Hot Dip Phosphating Internal & External </td> </tr> <tr> <td data-bbox="539 1464 778 1545"></td> <td data-bbox="778 1464 1444 1545"> <ul style="list-style-type: none"> • Epoxy polyester Coating 50 micron(min) Internal & External </td> </tr> <tr> <td data-bbox="539 1545 778 1659"></td> <td data-bbox="778 1545 1444 1659"> <ul style="list-style-type: none"> • WITH in-house Fully Automatic HOT DIP phosphating plant with Titration laboratory and components. </td> </tr> </table>	Anti corrosive treatment	<ul style="list-style-type: none"> • Automatic 8 Tank Hot Dip Phosphating Internal & External 		<ul style="list-style-type: none"> • Epoxy polyester Coating 50 micron(min) Internal & External 		<ul style="list-style-type: none"> • WITH in-house Fully Automatic HOT DIP phosphating plant with Titration laboratory and components.
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	<ul style="list-style-type: none"> • WITH in-house Fully Automatic HOT DIP phosphating plant with Titration laboratory and components. 							
11	Blower for Inflation & deflation	<p>Electrically operated single phase two stage motor coupled with blower for inflation and deflation of inflatable rubber boats.</p> <ul style="list-style-type: none"> • Input voltage: 230 V, 1-phase. • Both motors are protected by thermal- amperic fuses • Comes with a two pin plug • Output is up to 1200L/min (main motor) • Output up to 2000L/min (booster motor) • Provides up to 140 mbar (2 PSI) main motor • Provides up to 350 mbar (5 PSI) booster motor • Power is 1000 watts for main motor; 2000 watts for booster motor 						

		<ul style="list-style-type: none"> • 1..5m electric cord • 1m hose length • Includes 7 adaptors • Hose Size 25 mm ID - 30 mm OD hose • Continuous Run time minimum up tp 20 min without any effect on motor. • Inflates and deflates • Weight: 5kg (max.) <p>Accessories: 2 nos. spare hose, 1 set adapter.</p>
12	OBM Carrier	<p>OBM stand carrier cart featuring four 8” rear tires, two 3” front casters and a 315 lb capacity for holding OBMs up to 115 hp. Can easily service, maintain, and store boat motor. Made up 1" thick steel tube frame for support and a synthetic mounting wood block for resting the motor. The carriers have ergonomic handles making it easy to cart outboard motors in the garage or shop.</p> <ul style="list-style-type: none"> • Durable power coated high strength 1 1/4" and 1" steel tube frame • Durable synthetic mounting wood block resists gas & oil and will last very long time • Ideal for seasonal storage at home in the garage or for maintenance and repairs in the shop • Ergonomic handles • Assembly required • Material: Iron pipe, board, rubber • Max weight capacity: 315lbs • Weight: 35lbs • Rear tire size: 8" • Caster size: 3" • Steel tube frame: 1" • Size: 72" L x 29" W • Board dimension:19 1/5" (W) x 7 1/2" (H) x 1 3/5" (thickness) • Overall dimension: 27 1/2" (W) x 43" (D) x 41" (H)
13	SCUBA (Diving Equipment)sets with communication, BCD & accessories for Underwater Operations	<p>Self Contained under Water Breathing Apparatus (SCUBA) is to be used to conduct under-water search and rescue operation. The Complete set of the equipment should enable divers to conduct operation in cold or contaminated water. The apparatus should be rugged, light weight and suitable for single person use. Maximum operating depth to be 50 Mtrs, but tested up to 100 metres.</p> <p>The set should be provided with following items as: -</p> <ol style="list-style-type: none"> a. Breathing Apparatus with Compressed air cylinder including Full face Mask with breathing demand valve, <ul style="list-style-type: none"> ○ Regulator Unit ○ Buoyancy compensating device. ○ Octopus ○ Main Cylinder ○ Independent Reserve Pony Bottle Unit for emergency breathing b. Wet Suit c. Swimmer Knife. d. Weight Belts with weight. e. Dive Fins f. Divers body harness for connecting life line (with carabineer)

g. Communication set (Hardwired)

h. Life Line- 50 mtrs

**Breathing Apparatus with Compressed air cylinder including:
Full Face Mask with demand breathing valve**

- Semi-positive pressure so as not to allow any water retention in the mask
- Optimized for underwater communications
- Double seal silicone face skirt for comfort and fit
- Customizable nose block for equalization
- Low profile with excellent field of view
- Hose connects on right of mask for simple configuration
- Easily adjustable head straps & robust buckles
- Ambient Breathing Valve (ABV) fitted as standard
- Easily removable 2nd stage regulator for storage
- Service kit and technician training available
- Fully CE certified with Apeks or other overbalanced 1st stage regulators

Regulators:

An over-balanced first stage and a pneumatically balanced second stage with cold water and murky water capability (can be used in all temperatures including those below 10 C / 50 F and is environmentally sealed) which should have been tested for military and/or professional applications. (*certificate from international users or manufacturers certificate naming international military / fire / disaster response forces using their equipment*)

- The first stage should have environmental dry seal to keep water out of the main spring chamber to prevent ice build up and keep silt and contamination out.
- Compatible with EAN40 or equivalent out of the box
- First stage exterior - Chrome over marine brass
- 2 HP ports and 4 MP ports should be available
- DIN System of first stage attachment to tank
- Pneumatically balanced second stage with a heat exchanger
- Comfortable mouthpiece to eliminate jaw-fatigue.

Buoyancy compensating device

- A wrap-around jacket
- Tough Fade resistant Cordura 1000 with advanced ResisteK anti-abrasion and anti-fade material to hold up to the rigors of salt and chlorine/Adjustable cummerbund
- Built in inflator with a low pressure inflator hose to connect with regulator first stage
- Low profile Flat inflating / deflating dump valves to prevent accidental damage and reduce drag underwater.
- It should have at least 2 dump valves in addition to the inflator hose
- Built-in weight system to make task of divers easy without weight built
- Weight trims on the tank band
- SureLock™ II Mechanical Weight Release System (patented) – provides a safe, single-pull release. Inserting

weight is as simple as insert and “click”. With Sure Lock, your weights are secure in the BC. Once engaged, the only way to release the weight is to pull on the handle

- Backpack to include built in carrying handle and a traction pad to reduce tank slippage
- The large, easy-to-access, utility pockets found on either side of the Pro HD have two-way zippers with zipper pulls. There is an attachment loop inside the left pocket
- The waistband is adjustable in the back to accommodate a wide range of waist sizes
- Fixed pockets on the tank band increase weight capacity and help provide proper trim in the water
- A scooped octo-pocket on the top, front of the right lobe for easy stowage and deployment of an octopus. The octopus remains visible and accessible throughout the dive
- A positioning strap to allow setting the BCD at your preferred height each time
- Knife attachment points to give easy access to the knife
- Should have 5 stainless steel D-rings for attaching accessories
- Adjustable chest strap for personal comfort

Octopus

- Yellow coloured spare second stage regulator
- Should be a balanced regulator
- EN250-2000 Certification
- Length 100cm, 3/8" yellow colour.
- **HALF FACE MASK:** Should come with a half-face mask which can be carried by the diver and used in the event of the main mask's failure, with the Octopus. Low volume Twin-lens design with Easy Adjust Buckles, Wide Strap, Advanced Fit Technology, Black Skirt. Shatterproof, tempered glass lenses suitable for diving and snorkeling meet Indian Navy and Army standards

Main Cylinder

- A 10-12 litre aluminium or equivalent alloy cylinder
- Should have a minimum capacity of 2200 litres
- Should have a weight of not more than 15 kgs with the valve
- Should have a life of at least 20 years
- Should be certified by Indian Explosives Department or PESO

Independent Reserve Pony Bottle Unit for emergency breathing

- 3.0 cubic feet of air.
- Tank finish in durable Anodized Black.
- Easily refills from your own SCUBA tank with included refill adapter.
- Easily attaches to your BC with included holster and safety leash.
- Small, hands-free, nearly neutrally buoyant.
- Breathe on demand regulator - No complicated instructions.

- Completely redundant back-up miniature SCUBA system.
- Faster than buddy breathing and easier than an octopus.

Wet Suit:

- Two piece heat reflecting 3 mm Neoprene with hood
- Lycra collar for more comfort with magnetic lock
- Wrist in glide skin neoprene for ea-sier dressing
- Back Heavy duty #10 Zip with water shield
- Black color
- Super-stretch neoprene on shoulders, sleeves and armpits.
- Flatlock stitch.
- Pre-bent anatomic legs and arms.
- Embossed knee pad with additional protection.
- O-ring seals to finish the sleeves and limit water ingress

Gloves;

- Gloves should be 3-6 mm thick
- Should prevent contact with water
- Palm of the gloves made up of anti-slippe finish.
- The gloves should be suitable for divers up to a depth of 40 mtrs

Socks

- The socks should be in conjunction with above mentioned Dry suit
- should be made of neoprene of 3 mm thickness
- It should have non slippery sole, which reduces wear and prevents slipping on wet or oily surfaces

Diver Safety Knife

- Swimmer safety knife should be able to cut obstruction, rope, Net etc underwater.
- Blade 17-20 cms (approx).
- MATERIAL : Non corrosive
- SHAPE OF THE BLADE : Razor sharp smooth cutting edge on one side with considerable '_belly' or curve and should include a sharp line cutter hook for cutting fishing lines and leaders. The backbone of the blade to have a heavy serrated edge (Wavy or rounded serrations) running
- KNIFE TIP : Pointed.
- HANDLE: The size of the handle should be about 110-120 mm in length, with reasonable width so that a diver can hold the knife comfortably in water. The material used for handle should be black in colour, marine proof-Thermo rubber material externally and rubber/polypropylene internally with non-skid surface. There should be an effective guard / ridge / thumb rest between the handle and the blade to prevent fingers from slipping onto the sharp edge. There should be one lanyard hole at the top end of the handle with a brass metal eye (rounded edges) to secure the knife.
- WEIGHT - Approx 300 gms. LENGTH >= 20 cm.

Weight Belts with weights

- To attach lead weight of 1 Kg & 2 kg (4 Nos) to divers to adjust buoyancy during diving operation
- Waist belt should be made of polypropylene/ nylone fabric Provided
- To attach lead weight of 1 Kg & 2 kg (4 Nos) to divers to adjust buoyancy during diving operation

Booties:

- Anatomically correct shaped foot bed and outsole. Manufacturer's certificate
- Asymmetric toe, instep, and heel cap for added protection & durability
- Hook & loop zipper lock to keep zipper in place
- Standard neoprene upper with exterior thickness markings
- Flexible vulcanized rubber outsole
- Four seam (2 front, 2 heel) pattern
- Non-corrosive YKK #10 heavy-duty zipper

Fins:

- A rugged thermoplastic rubber fin featuring a big foot pocket to accommodate boots and a spring strap for easy donning and doffing. The design should be standard gear issue fin for military, special ops, coast guard and public safety divers.

Mask:

- Rugged frame made of techno-polymers reinforced with inorganic fibers.
- Reinforced frame to eliminate torsion and keep lens in the same plane.
- Wide edge of the skirt to provide a superior seal against the face
- Joint buckles should swivel up and down, in and out for optimal fit and comfort
- 4mm tempered flat glass

Lead Weights:

Divers' Lead Weight 1Kg & 2Kg, 2Nos (Each), with appropriate slots to fit with standard scuba diving weight belts, when required.

HARD WIRE UNDER WATER COMMUNICATION SYSTEM (2 Diver)

- The system will include a **HARD WIRE UNDER WATER COMMUNICATION SYSTEM** to establish and maintain voice communication between Diver Under Water and the Attendant / supervisor of the Diver on the surface during diving operations.
- It will help enable continuous voice communication between surface team and the diver Under Water.
- It will be rugged with special case prevent water from entering the surface unit and diver unit will be sealed to avoid any water from coming in or hindering communication.
- The surface unit will have a battery life indicator. Length of the umbilical provided will be 50 meters with strength minimum 1000 N i.e. with rope covering.
- The battery should last for over 06 hrs. Communication in same charge and battery level indicator on surface unit.
- There should be provision to connect up to 2 divers on each surface. Scope will include One Diver unit microphone and

		<p>speakerphone with attachment to the diving set full face mask + One Communication cable of 50 meters length with waterproof connectors + One Surface unit with speaker, amplifiers and headphone with microphone, built-in rechargeable battery for unit with Charger & Carrying case and Manual. Each cable should have its carry bag.</p>
14	HP Compressor For SCBA & SCUBA	<p>The COMPRESSOR will be a portable High Pressure breathing air compressor used to fill SCBA/SCUBA set cylinders with pure breathable air.</p> <ul style="list-style-type: none"> ▪ The compressor will be a portable one with FAD of not less than 100 LPM± 5%. ▪ The Operating Pressure should be suitable for SCBA and SCUBA Cylinder. Max working pressure should be 300 bar. ▪ The delivery pressure will be achieved in minimum three stages of compression. ▪ Suitable 4 stroke petrol engine of Honda make or equivalent with rope start ▪ Breathing air quality should be confirming to EN 12021 – 2002 ▪ V. Belt drive, Splash type lubrication ▪ Two Filling hoses, both kink protected on compressor side. One filling hose for 200 Bar and other filling hose for 300 Bar. Both hoses should --Be of max one meter length, Have pressure gauge mounted on its respective filling valves. ▪ Final stage safety relief valve fitted on compressor with CE Mark embossed on it. One set at pressure 225 & other set at pressure 330 bar. ▪ Operating Temp should be 5 deg C to 45 deg C ▪ Air Cooled Compressor Speed Max 2300 rpm ▪ Material of construction of Protective Covers to protect from moving parts such as fan, pulley & belt should be Non Corrosive & non rusting UV resistant advance plastic material ▪ Tool kit for compressor, operating instructions and compressor oil as well as engine oil with 2 final stage filter will be supplied with each machine. ▪ Required standard certification of National/ International of above equipment for safety shall be submitted with offer.
15	Collapsed Structure Search and Rescue (CSSR) Tools, Equipment and accessories	<p>One CSSR set comprises of the following Tools , Equipment and Accessories</p> <p><u>Generator Portable, 3 KVA Self Start: 1 no</u></p> <ul style="list-style-type: none"> ▪ Inverter Technology, AC and many other appliances output, ultra silent, portable, compact, with road clearance wheels ▪ Max. output- 3000 VA ▪ Rated output 230v/ 50 HZ- 2800 VA ▪ Engine type- HONDA GX200T/OHV, single cylinder, ▪ Air cooled ▪ Engine throttle- electronic governor (Load sensitive), 1500 rpm ▪ Choke- Auto ▪ Engine control panel display- i- monitor equipped ▪ Starting- electric/ recoil start ▪ Fuel type- Diesel ▪ Fuel tank capacity (Ltrs.)- 12.5

- Continuous operating hours- 6.9
- Oil alert system
- AC circuit protection Device with Pilot Lamp

Chipping Hammer :2 nos

- With adjustable bits.
- Chiselling impact rate-900-1800 per min or more.
- It shall be single impact force: 5j-25j
- Power input. 1000W-1900W
- Light in weight, shock proof body with required accessories, lubricants and electrical cord of not less than 3 meters in length with 10 amp three/two pin plug.
- Voltage require: 220V-240V.
- Rated current: Not less than 6.5 AMP
- Weight: not more than 10-12 kg.
- Noise level: not more than 120 db.
- Bits: pointed & flat type with suitable protective carry case.
- Vibration- it shall not be more than 12 m/s²

Specifications of chipping hammer bit flat qualitative requirements

Bit length- not less than 28 cm & 41 cm.

Bit diameter- not less than 18 mm

Material- High tensile steel with minimum 55% carbon, SDS type.

Accessories:-

- Flat Bit nos. 4
- Pointed Bit 4

Rotary Rescue saw 16" with Diamond tipped Blade: 2 nos

- Minimum 60 CC, 2 stroke petrol driven engine.
- Air cooled engine. 3
- Minimum Output Power up to 4 HP at 9000 Motor RPM.
- With Adjustable blade guard.
- RPM above 4000-5500
- Provision of wet cutting of materials by providing connection with water line.
- Accelerator lock is preferable for continuous use and safety inter lock must be provided.
- It should be capable of running 16" Dia blade.
- Minimum cutting depth = 100mm.
- Fuel tank capacity =0.8 ltr to 1.2 ltr.
- Should be capable of cold manual pull cord start.
- Noise level should be less than 120 db in one Mtr. around the equipment.
- Ignition=Electronic type.
- Should be provided with choke arrangement.
- Machine holding handle should be rubber coated/robust cutting providing cushion for getting good grip.
- Weight not more than 20 kgs with blade and full tank fuel.
- With rugged protective carry case.
- Rust Proof 19 International certificate on product quality.

Accessories.

- Diamond Tipped blades (Spare) carbadite type blade and abrasive blade. (For concrete 4 nos and for metal 4 nos.)
- 5 liter fuel container.
- Spare air filter.
- Pressure water tank with capacity of minimum 8 ltr along with 5 mtr rubber pipe.
- Complete tool kit.

Angle Cutter: 2 nos

- Electric Motor operating in range of 230 volts $\pm 10\%$ power rating with a maximum no load speed of 4900 rpm $\pm 10\%$ and full load speed up to 30000rpm $\pm 10\%$.
- 15 Ampere three core electrical cord of 5 meter length with three pin plug will be provided.
- The saw is to mount replaceable 12" (300mm) diameter diamond tipped or tungsten carbide tipped blade with a 25 mm arbor.
- The saw should be able to cut to a minimum depth of 100 mm. one tungsten carbide tipped blade will be provided as an integral component of the equipment
- It should be possible to adjust the position of the tool body through a minimum of 70 degrees independently of the cutting depth. It should also be possible to remove the tool base for cutting closer to walls and should be provided with guide wheels on the tool guard to ensure smooth travel over the surface material.
- A vacuum port for removal of the dust and debris as well as a shield for keeping debris away from the operator will be provided.
- A system for disengaging gears from motor to minimize effect of kickbacks will be provided to ensure operator safety.
- A lock on button for continues operation after start up will be provided.
- A rubberized wrap around handle will be provided.

Accessories

- Two spare tungsten carbide tipped blade and Four continuous rim diamond tipped blades.
- Carrying case.
- Tool kit
- Operation and Maintenance Manual

Reciprocating Saw: 2 nos

- Rated power:- Not less than 900 watt at 220-240 volts
- Stroke rate (at no load): Not less than 2700/Min
- Stroke length : Not less than 28 mm
- Cutting depth(wood): above 165 mm
- Cutting depth(Steel sheet):More than 20mm
- With required accessories and electrical cord of minimum 05 meters length with 5 amp three/two pin
- Plug along with an extension cord of 10 meters.
- Rate current: Not more than 6 amp.
- Noise level < 100db 10 Spare blades for metal & wood cutting
- Nos with suitable protective carry case.
- Weight: Not more than 5kg with blade.

- The starting current drawn by the motor should be limited to prevent the electric supply fuse blowing. This also prevents the tool starting with a jolt.
- Air cooled.
- Rust proof.
- Internationally certified on standards. Saw must be capable of cutting a variety of materials: all kind of wood and metal.

Blade type:

- Metal blade of bi-metal blades have a teeth of high speed steel and body material
- Out of high carbon steel used for metal cutting
- Blade length: not less than 1500mm
- Compatibility: Compatible with reciprocating saw equipment
- TP I: not less than 09 tooth per 2.54 cms
- Blade width: Not less than 16mm
- Thickness : Not more than 1,6mm
- Material: The low alloy cold rolled steel strips in hardened, tempered and polished condition having carbon, silicon, manganese, chromium, nickel sulphur and phosphorus. Tooth Setting: The provision of the rake setting of the tooth shall be at the discretion of the manufacturer
- Rust proof. 10
- Marking: The saw blades shall be marked with the size and manufacturers name and trade mark at equal spaced intervals over the bands. 1
- Internationally certified on quality standards.

Blade type:

- Metal (high carbon steel) Blade used for wood cutting.
- Blade length -230mm(minimum)
- Compatibility: Compatible with reciprocating saw equipment
- PTI:- Not less than 05 tooth per 2.54 cms
- Blade width: Not less than 19mm
- Thickness: Not less than 1.20mm
- Material: Low ally cold rolled steel strips in hardened, tempered and polished condition 16 having carbon, silicon, manganese, chromium, nickel, sulphur and phosphorous
- Rust proof.
- Marking: The saw blades shall be marked with the size and manufacturers name and trade mark at equal spaced intervals over the bands.
- Internationally certified on quality standards

Note: The Firm will provide 10 nos. each (for Wood & Metal) of the blade type.

Circular saw: 2 nos

- Electrically powered motor operating in 100 to 250 volts with power consumption between 1600 to 2500 watts. 15 ampere three core electrical cord of 5 meter length with three pin plug will be provided.
- Idling speed of motor up to 2000 to 3000 rpm with a maximum load rpm of 1200 to 1500 rpm. The motor should have a minimum endurance for continuous operation up to 60 minutes

- Should incorporate easily locatable push button start and an electric brake for quick stoppage.
- Size of blade: More than 12 inches diameter with an arbor not exceeding 3.2cm (1,25inches) the blade provided will be carbide tipped blade with minimum 32 teeth.
- The cutting capacity of the blade should exceed 125mm at 90 degrees and 82mm at 45 degrees. The saw should enable stable blade rotation and depth adjustment lever. A shaft lock will be provided for effecting blade changes.
- The weight of the saw with blade should not more than 17 kg.
- Rubberized wrap around saw and support handles with protection arrangement for shielding operator from debris and kickbacks will be provided.
- Noise level during operation at full load should not exceed 100 Db at a distance of one meter.

Accessories

The following accessories will be provided with each set:-

- Two Spare carbide tipped blades
- Tool kit.
- Carrying case.
- Operation and Maintenance Manual.

Electric Drill Machine: 4 nos

- Input power: - 450 W, No load speed: variable 0-3000 RPM. Light Weight
- Shock proof body with different sizes of bits for both metal & wood.
- Electric drill bit Set (Complete set of 19 bits) Bits used for wood & metal cutting, Bit Diameter: 1mm-10 mm, compatible with drill machine, Material; High speed steel, Hardness; 760 HV Min. 900 HV Max, Hand of cutting specified Right, Each center drill shall be covered with a suitable rust proofing material.

Accessories

- Drill bit for metal & wood 2 sets
- Drill reversible 2 sets

Key Hole Saw: 2 sets

- Saw blade type: metallic high tensile steel used for wood & metal cutting.
- Saw use: it is a flat blade used in combination with normal bit & having tips as cutting edge, having a centre hole to insert the drill bit.
- Saw blade diameter complete set of 04 saws of dia 2.54 cms, 5.08 cms, 7.62 cms, and 10.16 cms.

Rotary Hammer Drill: 2 nos

- Power input: 680 Watts
- Power output: 390 Watts
- No load speed: 0-1100 RPM
- Blows per minute: 0-4200 BPM
- Impact energy: 0-3.0 J

- Tool holder: SDS-plus
- Max. drilling capacity (wood): 30 mm
- Max. drilling capacity (metal): 13 mm
- Max. drilling capacity (concrete): 24 mm
- Max drilling capacity (core bit): 65 mm
- Weight: 2.6 kg
- Length: 352 mm
- Height: 200 mm

Bit type: Metallic bits used for drilling in concrete, metal

- Bit length: 10" & 16"
- Bit diameter: 14 mm & 18 mm
- Compatibility: compatible with rotary hammer drill equipment

Accessories

- Drill bit 4nos.

Ventilator with Air tube; 1 nos

It should be able to provide both positive and negative pressure ventilation. The unit shall feature a square construction design for strength and stability. The unit shall be designed with two top carrying handles on each corner for easy positioning and rapid deployment.

The ventilator shall have four (4) stabilizing rubber feet to ensure the unit shall remain stationary while running at full speed.

The entire frame of the unit shall be constructed of steel and shall surround the seven-blade 16" airfoil propeller to enhance lifting and user safety. There should be minimum 7 blade and shall be constructed of precision cast of aluminium alloy #713. The blade shall be driven by the petrol engine that shall have a direct drive connection. The blade shall be precision balanced and attached to the engine shaft with a split taper-lock bushing.

The unit shall be designed to attach a ventilation air duct to either the inlet or outlet side of the fan allowing for both positive and negative pressure ventilation.

The unit shall be tested to AMCA 210-99 (Negative Pressure or Shroud test with no entrained airflow) and the air movement shall exceed 4500 cubic feet per minute. AMCA Certificate to be enclosed.

The ventilator shall be designed with the following:

Engine Manufacturer:	Honda or Briggs Start on Engine
Horsepower:	Minimum 3.5 HP, 4-cycle
Rotations per minute:	2800 RPM
Airflow AMCA 210:	4,500 CFM
Dimensions:	16" deep x 20" wide x 20" high
Weight:	26 kgs

The aforesaid unit should be supplied with high quality duct made with heavy-duty strips. It should come complete with a storage bag and is ideal for moving large quantities of air into hard to reach places. Suitable

metal adapter should be provided. Size will be 16 " Dia duct with 20 ft in length

Hydraulic Jack 10 Ton: 2 nos

- Rated capacity: 10 tons
- Application: for lifting heavy objects
- All casting shall be in accordance with appropriate Indian standard, shall be of uniform quality, free of blow holes, porosity and shrinking cracks.
- The jack shall be operated by hand lever of maximum length of 1000mm.

Come Along: 2 nos

- Come Along system should be of steel or hard Aluminium Alloy consisting three major parts i.e. Base, Mast & Boom.
- The system should provide a safe secure anchorage for confined space entry, exit and rescue work.
- The system should be completely collapsible and portable for advantage of easy transportation.
- The system should be completely collapsible and portable for advantage of easy transportation.
- The system should be corrosion resistant. All adjustment should be on key plugs easy to assemble and dismantle without any tools.
- The rated capacity in terms of working load should be more than 200 Kg. The complete system should have compliance of European standard or should have certification from NABL approved Lab for safety factor.
- Tendered should supply ascending descending device/winch, accessory handle, rope, rescue stretcher and Full body Harness along with system. Ascending descending device/winch should work on principle of wrap or contract friction.
- Ascension handle should be made up of light forged aluminium Alloy. The handle grip should be comfortable with thermal insulation.
- Rope should be made of polyamide. The breaking load of rope should be more than-24 KN (without end connection) and more than-18 KN (with end connection).
- The rope diameter should be 9 mm to 12 mm only. Rescue stretcher should be made up of Fibre / Lightweight Aluminium Alloy.
- It should be in bucket shape with sufficient number of straps to hold casualty. It can be lifted vertically up & down. Full body Harness should be complied with EN 361/ 358.

Electric Chain Saw: 2 nos

Chain saw wood cutting (Electrical) single phase AC/DC Voltage 220-250

- Guide Bar Length: 16"
- Chain Speed : more than 2,900 FRM
- Chain pitch: 3/8"
- Power Type: coded
- Light weight

Accessories

- Replacement chain 2 nos.

Plier 8'- 5 nos

- Size : Length 8"
- Material: made of forged steel with insulated handle
- Teeth/cutting edge: One jaw having cutting edge & other have teeth

BIS Specifications

- The pliers should have insulated handle. The insulating material shall be PVC or any other suitable material.
- The insulation shall cover the whole of the handle and insulating material shall adhere firmly to the handle
- The pliers shall pass various tests described in IS 2615

Vice Grief 10"- 5 nos

- size : Length 10"
- Material: made of forged steel
- Teeth : On both jaws

Bolt Cutter 30"- 2 nos

- Size : Length 30"
- cutting jaws : made of high tensile solid alloy steel, specially heat treated with centre cut head
- Handle : With sufficient grip of rubber fro a length of 6 to 8 inches
- Application : Suitable for cutting hard material viz. bolt, iron rod of 10 to 14 mm diameter

Bolt Cutter 14"- 4 nos

- Size : Length 14"
- cutting jaws : made of high tensile solid alloy steel, specially heat treated with centre cut head
- Handle : With sufficient grip of rubber for a length of 6 to 8 inches
- Application : Suitable for cutting hard material viz. bolt, iron rod of 8 to 10 mm diameter

Chisel for concrete 8"- 5 nos

- Size- length 8", width 1"
- Material- made of hardened alloy iron, specially heat treated
- Application- suitable for chiselling of concrete & brick.

Chisel for concrete4"- 5 nos

- Size- length 4", width 1"

- Material- made of hardened alloy iron, specially heat treated
- Application- suitable for chiselling of concrete & brick width ½”

Shovels Round 8 inch- 10 nos

- Size: length 8”, width 8”, of almost round shape
- Material: made of wrought iron
- Handle: Provision of wooden handle to be incorporated
- Application: Suitable for various types of earth work

BIS Specification

- The shovel blade shall be made of suitable quality sheet steel as such T-50, T-55.
- Each blade shall be made in one piece without any welded or riveted joint.
- Shovels to be supplied with handles complete.
- The blades shall be well formed & cleanly made.
- The blades shall be free from seams, splits, cracks.

Spade Shovels 12 x 10 inches- 10 nos

- Size : Length 12”, width 10”, of rectangular shape
- Material: made of wrought iron IS-27438
- Handle: Provision of wooden handle to be incorporated
- Application: Suitable for various types of earth work

BIS Specifications

- The shovel blade shall be made of suitable quality sheet steel as such T-50, T-55.
- Each blade shall be made in one piece without any welded or riveted joint.
- Shovels to be supplied with handles complete.
- The blades shall be well formed & cleanly made
- The blades shall be free from seams, splits, crack

Screw driver set- 2 Sets

- Size: One complete set of eight sizes of bits
- Type: Flat tip/square tip including star shaped screw driver
- Handle: Insulated handle tested at 3000 volts

BIS Specifications

- The blades shall be made from suitable steel which is heat treated
- Plastic handle shall be solid and made of cellulose acetate.
- The ferrules shall be made of steel conforming to IS 513

Framing square- 4 nos

- Standard brand

Axe mate kit- 5 nos

- Designed for Emergency workers, fire fighters and in disasters and consists of Axe with fibre glass reinforced, thermoplastic handle, forged steel/tested for at least 22000 volts with different attachments i.e. shovel, mattock, hoe, fire rake, narrow pick,

board pick, quality leather axe sheath, canvas carry case & heavy duty cardboard with handles.

- WEIGHT: 05 Kg to 07 Kg
- CONSTRUCTIONS: The axe head, pick, chisel and mattock are made of grade EN 8 steel or better than EN 8 steel. The shovel, rake cum hoe are made from steel and the blades should be hardened for long life.
- The hitch pins are of high-grade steel hardened and plated. The axe head is fixed with the handle and preferably bonded with the best epoxy resins. The composition of the handle is of protruded fibreglass insert moulded on the outside with PPCP and EPDM, giving tremendous elasticity and shock absorbent, to avoid blisters or sore palms even after having chopped quite some wood.
- DESIGN: The axe head is designed to chop wood effectively.
- HARDNESS: Of the blade ensures to cut or strike against rock or steel.
- APPROVAL: Tested at 22000 volts at least.

NOTE TO TENDERER:

- .The tendered shall indicate the make/model in their offer.
- The tendered shall furnish the clause-by-clause compliance statement. In case there is any deviation the same should be clearly brought out in the offer.
- They shall mention the relevant BIS/EN/DIN/UL certificate of the product offered.
- Technical manual comprising of servicing details shall be supplied with system
- Relevant Test certificates shall be provided from a Govt. approved laboratory or from the manufacturer, along with their o

Crow Bar 24"- 10 nos

- Size: Length 24"
- Diameter of rod: 1"
- Material: made of tempered steel
- Attachment: claw attachment for removing nails.
- The bars shall be heat treated to obtain a minimum hardness.
- The material shall be suitable quality steel such as wrought steel
- The bars shall be forged clean & in one piece.
- Cutting ends of the bars may be rounded of & finished ground.

Crow Bar 36"- 10 nos

- Size: Length 36"
- Diameter of rod: 1"
- Material: made of tempered steel
- Attachment: claw attachment for removing nails.
- The bars shall be heat treated to obtain a minimum hardness.
- The material shall be suitable quality steel such as wrought steel
- The bars shall be forged clean & in one piece.
- Cutting ends of the bars may be rounded of & finished ground.

Pick Mattock- 10 nos

- Size : 2" wide, 9" long

- Weight: 3 Kg
- Ends : One prong end blunt point headed 9" long & other prong flat
Headed

Hacksaw 12" Tubular- 4 nos

- Size : Adjustable length 250 mm to 300 mm with handle
- Blade Type: High speed steel blade, size 300 mm x 12.5 mm x 0.63 mm
- Body: Tubular frame body
- Provision: for tightening & loosening of blades BIS Specification
- Hack Saw frame
- Type : Open grip adjustable flat hacksaw frame
- Nominal size: 250-300 mm.
- Impact test: Dropped on a concrete floor from a height of 3 meters

Handsaw- 4nos

- Size : Length 600 mm with wooden/ plastic handle
- Shape: Trapezium shape, width at one end 125 mm & 45 mm on the other
- Thickness : 0.80 mm
- Cutting edge: It should be straight
- Material: Blade made of hardened & tempered spring steel strips

Hacksaw replacement blades- 20 nos

- As per standard

Tin Snip 12 inches- 4 nos

- Size : Length 300 mm
- Application: For cutting tin sheets of small thickness

Emergency light with 30 meters wire- 5 nos

- Working lamp with 30 meters of 4 mm wire
- Type: with bulb holder, wire mesh protection for bulb
- Handle: fully insulated handle to provide manual grip
- Cord: PVC wire of 6 mm, 50 meter length with 2/3 pin plug

Claw hammer- 5nos

- Weight : 1 lbs
- Type : Nag ore type
- Size : Width 4"
- Provision : 3/4" head dia at one side of hammer & claw on the other side to remove nail
- Handle : Wooden handle

BIS Specifications

- Striking face hardness : 46 to 58 HRC
- Hammer shall be cleanly forged & free from flaws, seams, & other forging defects.
- The claw hammer shall be made of steel conforming to designation T-55 of IS-1570
- The handle shall conform to IS-4953 & shall be shaped before

fitting to suit the eye of the hammer.

Sledge hammer 10 kg- 5 nos

- Weight : 10 KG
- Provision: Iron head
- Handle : Wooden handle IS-84137
- Application: To break concrete & drive stacks

BIS Specifications

- The hammer heads shall be made from fully killed forging quality steel.
- The hammer heads shall be hardened & tempered on the striking faces & pains only.
- The striking face shall have hardness between 46 to 58 HRC.
- The hammer heads shall be cleanly forged in one piece

Brick hammer- 10 nos

- Weight: 1 lbs
- Provision: One end square shaped & the other flat chisel shaped
- Material & Handle: Iron alloy with Wooden Handle
- Size : Width 4"
- Application : Used for breaking bricks

BIS Specification

- The hammer heads shall be made from fully killed forging quality steel
- The hammer heads shall be hardened & tempered on the striking faces & pains only.
- The striking face shall have hardness between 46 to 58 HRC.
- The hammer heads shall be cleanly forged in one piece.

Level 12"- 2nos

- Standard

File- 5 nos

- Flat file, double cut, rough
- Size: length 12"
- Handle: wooden handle
- Material: high speed steel
- Application: to sharpen tools & to smooth rough edges

Pry bar 3 ft.10 nos

- Size : Length 36 "
- Diameter of rod: 1"
- Material: made of tempered steel
- Attachment: Claw attachment for removing nails

BIS Specifications

- The bars shall be heat treated to obtain a minimum hardness value of 320 HV.
- The material shall be suitable quality steel such as wrought steel

Carpenter hammer- 10 nos

- Head dia ¾ inches with wooden handle. Made of tempered steel to drive nails.

Extension cord- 5 nos

- Type: with one 15 amp & two 5 amp switch socket fixed on wheel of diameter 1 feet with handle

- Handle: insulated handle of 6" to provide manual grip
- Cord: PVC wire 8 mm, 25 meter length with 2/3 pin plug, with wrapping arrangement on wheel.

Fuel Containers 20 Liters- 10 nos

- Type : Eco friendly thermo setting plastic
- Capacity : 20 liter
- Application: To store & transport small amount of fuel
- Accessories: With keep & pipe of filling the fuel BIS Specification.
- The containers shall be made from the following grades of HDPE Containers HDPE 42 BB Closures HDPE-43 MB

8 Penny nails {Kgs} -2, 3, 4 inches assorted- 2 kg each

- Size & Material : 14 no nails of size 1", 2" (Mixed), made of iron
- Application : To join wooden members BIS Specification As per IS-725

16 Penny nails {Kgs}-2, 3, 4 inches assorted- 2 kg each

- Size & Material : 10 no nails of size 3" , 4" (mixed), made of iron
- Application : To join wooden members
- BIS Specification As per IS-725

Dust Mask- 50 nos

- Size : 4"
- Provision: Having two elastic straps to fasten above & below the ear to prevent the dust
- Material: The cloth used for fabricating dust mask should be able to prevent entry of dust

Carpenters pencil- 10 nos

- Standard

Mega phone- 4 nos

- Power output: - 16 watt rated /20 watt max.
- Voice range:- 0.4 km (01 km in quite area)
- Power source:- with suitable battery
- Microphone:- unidirectional
- Dimension:- horn dia.- 220 mm
- Length:- 370 mm
- Weight: - 2 kg approx.
- Dry cell & 12 V car battery operation
- All ABS body, sturdy yet lightweight
- Built-in siren
- Microphone with volume control and press to talk switch

Buckets Large- 10 nos

- Size : 25 Liter capacity
 - Provision: With handle to carry
 - Material : Made of plastic
- BIS Specification
- The bucket shall be moulded from natural or coloured HDPE(High density polythene bucket)
 - The HDPE used for injection moulding of buckets shall be of grade 45/55 MA.
 - The buckets shall have smooth surface finish without any blemishes.

- The handle shall be rigid and made of metal, coated metal or HDPE.

Safety Vest Fluorescent water proof-50 nos

- Material : Sleeveless jacket made of red fluorescent color cloth with white strips
- Size : Extra large

Scene tape roll 100 mm- 4 Rolls

- Size : Length 100 meter, width 3".
- Material : PVC tape roll with red & white strips (Red color preferably in fluorescent color) with DANGER written in bold letters

Paint brush-4 nos

- Standard

Racks 6 ft.*3 ft.*1.5 ft.- 2nos

- Standard

Spray paint Orange 400 cc- 5 nos

- Weight/Volume:-300 gm/400 cc
- Color:- Color must be of high contrast, durable & fluorescent
- Knob arrangement:-Press knob for release of paint, the release of paint should be in the form of spray jet.

Steel pipes (6 ft. /1 1/2-2" dia.) – 8 nos

- Size- length 6 feet, external dia. 1 1/2-2 " & thickness 5 mm
- Material- seamless steel duly powder coated painted.

Eveready batteries 1.5 v- 20 ns

- Standard

Spray bottles- 4 nos

- Standard

Ear plug-50 pairs

- Material :-Made of soft eco friendly fibre material, corded
- Provision:-With a lace or same type of other arrangement to keep units of both the ear together
- Application :-To prevent entry of dust & loud sound in the ear

BIS Specification

- Material coming into contact with the body shall not cause irritation
- It shall be resistant to skin oil, hair oil and ear wax.
- Ear protector shall be made of material which is capable of being cleaned and sterilized.
- Ear Plug should be elastic to the ear canal
- Ear plug should be made so that no deleterious changes occur between (-) 25 and + 55 degree centigrade.

Knee pad- 50 pairs

- MATERIAL:-made of hard plastic with 1" sponge cushion inside with pair of straps for securing knee pads
- Application :-To fasten on the knees to protect from injury

Safety goggles- 100 nos

- Color :-Grey/blue
- Material:-Lightweight & safe to wear with impact resistant plastic
- Provision:-Adjustable according to the size of the head, loose enough to pass the sweat

Heavy duty works gloves- 20 each

- Material- made of fine cut resistance fabric, flexible
- Application- capable to work with hand held machine
- Size- medium and extra large

Back board straps- 2sets

- Restraint patient- one part
- Material- heavy duty seat belt webbing
- Length- 300 cm
- Width- 5 cm
- Package- in sets of 4
- Restraint patient- two parts
- Material- heavy duty seat belt webbing
- Length- 450 cm
- Width- 5 cm
- Locking mechanism- dual side release buckles plastic/ steel snap lock/ buckles (male and female ends)

Back board long (spine board)- 2ns

- Dimensions- length 1830 mm
- Width- 420 mm
- Weight- 8 kg
- Capacity- 150 kg CT/MRI compatible and radio lucent
- Material- carbon fibre or fibre glass material.
- Separate hand holds and restraint holds with smooth edges for easy and comfortable lifting

Fire extinguisher 20 lbs. dry chemical type- 2ns

- Size/ weight- 10 kg
- Type- dry powder chemical type BIS specification 2171.
- The shape of the body shall be cylindrical
- The top dome and bottom end shall be dished outward (convex) without reverse curvature.

Latex gloves-100 pairs each

- Shall be small, medium and large in size

MFR box-4 nos

- Shall be of imported origin for medical use having two tray compartments to accommodate first aid medical

Tarpaulin 4*4-8ns

- Size- 4 meter* 4 meter
- Material- made of water proof canvas cloth, its edges should be secured by stitching a strip of similar cloth or otherwise of 1" width along the periphery of tarpaulin.
- Colour- Green/ navy blue
- Fabric (IS: 2089-1997)

Tarpaulin 6*6- 8nos

- Size- 6 meter* 6 meter

		<ul style="list-style-type: none"> • Material- made of water proof canvas cloth, its edges should be secured by stitching a strip of similar cloth or otherwise of 1" width along the periphery of tarpaulin. • Colour- Green/ navy blue <p><u>Exhaust fan 30 mm- 2 nos</u></p> <ul style="list-style-type: none"> • Portable smoke exhauster/ ventilator should be imported make of reputed product and light weight with weight less than 45 kg., compact having fan size 16" with minimum 10 blades capable of airflow output of minimum 56000 cu. M. / hr. • with minimum 5.5 hp. 4- stroke petrol engines. It should operate for minimum 75 minutes at full speed with full fuel tank. Noise level less than 95 DB. At 3 meters • Ventilator set should be supplied complete with collapsible duct (5 m), 10 degree tilt accessory and water mist adaptor. It should also be equipped with an electronic meter displaying the hours of operation and the engine rotation speed. The equipment shall be CE marked.
16	Concrete Cutter	<ol style="list-style-type: none"> 1. Type: Ring type Concrete cutter. 2. Air Cooled 2 stroke petrol Engine Pull cord Start with Choke arrangement. 3. Minimum Output power – 4 Kw. 4. It should fuel efficient engine integrated with advanced carburettor to reduce emissions in comparison to power. 5. It should be capable of running 14" (350 mm) dia. Ring type blade for concrete cutting. Minimum cutting depth – 220mm 6. Blade Guard should be having the wheels on it for smooth operations. 7. Ring should be such that it runs on the four rollers provided in the machine. 8. Rollers of should be adjustable for ensuring the proper installation of ring in the machine. 9. It should be provided with the arrangement to spray water on the Cutting Ring. Should have the flow control valve to adjust the pressure of water. 10. Fuel tank capacity – 1ltr. Minimum. 11. Noise level should not be more than 120dB at 1 mtr. Distance. 12. Weight – should not be more than 14 kg (with Full tank and Blade). 13. Quality test certificate in accordance to ISO/EC or any National/international standard confirming to specification must be attached with the bid. <p><u>ACCESSORIES TO BE SUPPLIED WITH MACHINE:</u></p> <ol style="list-style-type: none"> 1. Three nos. Ring type Blade compatible with the above machine (350 mm dia.) 2. 5 Ltr. Fuel Container. 3. 5Nos. of spare air filter. 4. 01 no. Battery operated Water tank with 15 Ltr. Capacity.
17	Hydraulic Power Shore Unit	Versatile and easy to assemble emergency shoring system providing quick and reliable stabilization for every rescue situation. Consisting of various lightweight, fully compatible components with snap-lock connection, enabling both shoring and lifting. Shoring at various angles possible.

- Retracted length mm:1092
- locking system: Auto Lock
- Stroke mm: 252
- weight kg:13.0
- working pressure:720 bar
- force at working pressure KN / t : 100/10.1
- oil content at max. stroke cc:400
- To be used in combination with struts with hydraulic cylinder hand pump, oil content 700 cc, weight ready for use 9.9 kg, pressure gauge 0-720 bar, rubber protection cover for pressure gauge, hose 3 metres with quick-coupler.

Heads & Other Accessories:

- Flat head - aluminium. For support against a flat surface; 0.3 kg; Ø 89 mm.
- Pointed head. For use in e.g. narrow gaps; 1.2 kg; Ø 89 mm.
- Flat head with nailing plate - aluminium. For support against a flat surface; with nailing holes; 0.8 kg. 150 x 150 mm.
- Base support plate. Can support 3 swivel heads and is suitable for the use of up to 3 tensioning belts to create a stable triangle; 4.0 kg.
- Tilting head - aluminium. For support on uneven or tilting surfaces. Max. Angle 45 degree in all directions; 1.7 kg, 95 x 95 mm.
- Trench support plate - zinc plated steel. Can be nailed to wooden plates to support 2 swivel heads in e.g. a trench; 0.9 kg; 280 x 110 x 75 mm.
- Tilting head with nailing plate - aluminium. For support on uneven or tilting surfaces; with nailing holes. Max. Angle 45 degree in all directions; 2.5 kg, 150 x 150 mm.
- Tensioning belt. Length 4.0 m, width 35 mm, weight 1.4 kg, load 10 kN.
- Beam support head. For use with beams up to 150 mm; with nailing holes; 1.7 kg.
- Adjustable hook wrench. To create a preload with the MS 2 L 2+. Two pieces are advised.
- Beam support head. For use with beams up to 100 mm; with nailing holes; 1.2 kg.
- Rope with carabine hook. To lower struts, e.g. into a trench.
- L-support head. For use with wide beams; with nailing holes; 1.0 kg.
- Rubber anti-roll block. Prevents struts and extensions from rolling on uneven surfaces and protects against dirt and damage.
- Swivel head - aluminium. Can be placed in almost any position and against each other for mutual support; 2.0 kg.
- Storage / carrying bag for accessories.
- V-block head small-aluminium. For support of pipes;0.7kg; Ø 89mm.
- Storage / carrying bag for struts and extensions.
- V-block head large - aluminium. For support of pipes; 1.7 kg. Opening x width 141 x 100 mm.
- 2-way block. To support 2 tilting heads.
- Cone head. For support on concrete or steel surfaces; 0.5 kg; Ø 89 mm.
- 3-way swivel head. Contains 3 integrated swivel heads for use with up to 3 shoring lines in various directions.
- Cross head. For use on many kinds of surfaces; 1.1 kg.

18	Self-Contained Breathing Apparatus	<p>The set shall be self-contained open circuit type compressed air breathing Apparatus set fully confirming to EN 137:2006 (type-2) or equivalent standard. Each Breathing Apparatus set shall be supplied inside a carrying box/ case.</p> <ul style="list-style-type: none"> • Materials: The material used for the construction of BA set shall have adequate mechanical strength, durability, and resistance to deterioration. The material used for the construction of various parts of the set shall be as far as possible anti-static in nature. • Mass: The mass of the ready to use set with facemask back plate & fully charged compressed air cylinder shall not exceed 11.00kg. • <u>Back plate (body harness):</u> Anti-static back plate made from glass-filled polyamide material for resilience and impact resistance, with carbon fibre for strength fitted with a rubber shocker at the base. It shall be ergonomically designed with two integrated moulded carrying handles. • <u>Face mask:</u> Full mask assembly shall be with reverted edge seal and made of Ethylene Propylene Dine M-rubber (EPDM)/silicone material with flame resistance requirement meeting EN 136:1998 clause III. • <u>Air cylinder:</u> The air cylinder shall have a minimum water capacity of 6.8 litres and free air capacity of min 2040 litres when filled at a pressure of 300 bar. • Valve to be in line type & complied in accordance to EN/ISO/BIS standard. The make of the valve should be of the same make of the SCBA • The cylinder shall be aluminium lined, fully wrapped carbon composite materials. • The weight of the cylinder when fully charged shall not be more than 7 kg. • The cylinder shall be approved by PESO, India.(Petroleum & explosive safety organization) • <u>Pressure reducer:</u> The set shall be supplied with a small, light, sturdy and encapsulated, high air delivery pressure reducer valve which directly be fitted to the cylinder valve assembly. • The pressure reducer valve shall have a high-pressure outlet and low-pressure outlet with a warning whistle. • The reducer shall be capable of supplying peak air flow at the rate 1400 lit/ min. & 1000 lit/min at normal condition. The reducer shall be of the "balanced" type, ensuring that output pressure to the demand valve is stable and constant with varying input pressure down to 20 bars. • <u>LUNG DEMAND VALVE (LDV):</u>The set shall be provided with plug-in quick removable type lung demand valve(LDV) with a rubber hose having a quick connect coupling connected to the low-pressure side of pressure reducing valve. • <u>Mechanical pressure gauge:</u> The mechanical pressure gauge should be provided to check the pressure on the Cylinders. The mechanical pressure gauge should be self-luminescent and it should rotate 360 degree. • <u>Hoses:</u> The Single Line hose should combine Medium pressure supply for lung governed demand valve , High pressure supply for the gauge, Warning signal and 2nd manconnection <p>It should have accessories like mechanical pressure gauge, hoses, rescue hood and smoke hood.</p>
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19	Branch Cutting Saw (Electrical)	<p>a)Engine Displacement (cm³) - 25-28 CC b)Power Output (bhp) - more than 1.3 HP c)Weight (kg) - should not be more than 7.0 Kg d)Overall Length with Cutting Tool – 265-385 cm e)Tank Capacity (l) - 0.65-0.70 f) Anti Vibration System - YES g) Elasto Start - YES h) Harness - YES</p> <p><u>Special Features-</u></p> <ul style="list-style-type: none"> • Lightweight, Compact construction • Anti-vibration system for greater operator comfort and safety • Practical control handle with integral throttle trigger, throttle trigger interlock and slide control with starting throttle, run and stop positions • Long shaft for good reach without need for lift bucket or work platform • Shoulder strap or full harness for greater safety and less fatigue <p>Telescopic shaft compresses to convenient length for transportation</p>
20	Mountaineering Equipment	<p><u>The Mountaineering Equipment will consist the following equipment</u></p> <p><u>Rope & Web:</u></p> <p><u>Dynamic 9.8 mm diameter Rope: - 05 nos</u> Design for climbers, greater longevity, easy to use and ultrasonic finish. Should be light weight, facilitate manoeuvres.</p> <ul style="list-style-type: none"> • Material: nylon • Rope Style : Dynamic • Rope Type: (CE EN 892, UIAA): single rope • Rope Length: 60 Meters • Rope Diameter: 9.8 mm • Impact Force: 8.4 KN • Dynamic Elongation: 35% • Static Elongation: 9% • Weight: 60 grams per meter <p><u>Semi-static 10 mm diameter rope: - 05 nos</u> Design for caving and canyoning, offer excellent grip and consistent handling</p> <ul style="list-style-type: none"> • Material: nylon • Rope Style : Dynamic • Rope Type: (CE EN 1891 Type A, UIAA): semi static • Rope Length: 70 Meters • Breaking strength: 28 KN • Rope Diameter: 10 mm • Impact Force: 4.8 KN • Static Elongation:3% • Weight: 69 grams per meter <p><u>Rope Rescue 11 mm- 05 nos</u> Resistant to abrasion idle for users who are not expert in rope techniques.</p> <ul style="list-style-type: none"> • Material: nylon • Rope Length: 200 Mtrs • Strength with Figure of 8 Knot : 15 KN

- Rope Diameter: 11 mm
- Impact Force: 5.1 KN
- Weight: 73 grams per meter
- Certification: CE EN1891 Type A

6mm Utility Cord- 2nos

Specially designed cord has a durable, flexible sheath, ideal for prusiks, rigging and lashing.

- Material: nylon
- Certification: CE EN 564, UIAA Cord
- Length: 120 Mtrs.
- Strength: 9kN
- Weight per Metre: 24 grams
- Dia: 6 mm

8mm Web Sling- 10nos

Extremely lightweight and compact sling. Should be abrasion resistant.

- Material: nylon
- Certification; CE and UIAA certifications
- Strength; 22 KN
- Length: 180 cm
- Weight: 50 grams

18mm Nylon Runner- 05 nos

Webbing with sewn eye on each end for speciality rigging application for anchors.

- Versatile, strong and durable nylon construction
- Strength; 36kN
- Length; 96"
- Weight: 36 grams
- CE and UIAA certifications

1 inch Tubular Webbing – 1 no

- Each size is color-coded for quick and easy identification
- Versatile, strong and durable nylon construction
- Strength; 35.6 kN
- Length: 150 ft
- CE and UIAA certifications

Anchor Strap: - 05nos

- Fitted with forged D-ring on the end
- Made up of 44mm wide Polyester Webbing
- Length: 150 cm
- Strength: 22kN
- Weight: 425 Gram
- Certification: CE EN 795 :Type B

Steel Wire Rope Sling: 03 nos

- Made of PVC coated 8.3 mm G.I. Wire Rope
- Length: 2.0 mtrs
- Has steel thimbles at both the ends to enable connection with hardware
- Minimum Breaking Strength: 23 KN

- Conforms to EN 795 : 2012 type B

Beam Anchor: 02 nos

Enables the creation of a mobile anchor point and to work in safety while retaining a wide freedom of movement.

- Materials: Aluminium Alloy & Brass
- Minimum Breaking Strength: 23 KN
- Net Weight: 1850 Grams+_ 10 grams
- Flange width adjustable from 90 mm to 340 mm
- Conforms: EN 795 : 2012 Type B & ANSI Z 359.1 : 2007

Beam Anchor: 02 nos

- Materials: Aluminium Alloy & Brass
- Minimum Breaking Strength: 23 KN
- Net Weight: 1550 Grams +_ 10 grams
- Flange width adjustable from 75 mm to 150 mm
- Conforms: EN 795 : 2012 Type B & ANSI Z 359.1 : 2007

Parapet Anchor: 02 nos

- Materials: High strength steel galvanized to provide corrosion protection
- Minimum Breaking Strength: 23 KN
- Net Weight: 9000 Grams +_ 100 grams
- Flange width adjustable from 60 mm to 360 mm
- Conforms: EN 795 : 2012 Type B & ANSI Z 359.1 : 2007

Beam Anchor Trolley: 01 no

Provide a movable anchorage point using the length of the Beam. Provided with a Steel D ring attached to the trolley – bar

- Materials: Aluminium and Stainless steel, corrosion resistance
- Flange width adjustable from 80 mm to 250 mm
- Minimum Breaking Strength: 23 kN
- Net weight: 3900 grams +- 10 grams
- Conforms: : EN 795 : 2012 Type B & ANSI Z 359.1 : 2007

Climbing Harness: - 10 nos

Climbing and Mountaineering harness with adjustable leg loops. Provides excellent weight distribution around the waist and legs to ensure greater comfort. Double back light buckles on the waist belt and leg loops ensure quick and easy adjustment.

High-tenacity polyethylene for improved resistance to rope friction ,red wear indicator on lower bridge to easily identify when the harness should be retired, Fitted elastic leg loops give complete freedom of movement. Four equipment loops: two rigid ones in front for quick and easy access to equipment and two flexible ones in the rear to avoid creating pressure points with a backpack.

- Material(s): nylon, polyester, EVA, polyurethane, aluminium, high-tenacity polyethylene
- Certification(s): CE EN 12277 type C, UIAA
- Size: M- 3nos, L-5nos and XL- 2 nos

Full Body Harness: - 03 nos

Design for comfort in any situation. X – Shaped dorsal construction wraps to reduce pressure points during prolonged suspension, semi-rigid, wide waist belt and leg loops for excellent positioning. Sculpted and lined with

breathable perforated foam for comfort during suspension. Foam shoulder straps are widely spaced to reduce neck chafing; when the waist belt is loaded.

- Quick to don and fast to adjust
- Anatomic waist belt and leg pads feature air channels and breathable fabric
- Quick-connect buckles are secure, simple to adjust, and cannot open while loaded
- Dorsal attachment ring can be stowed inside back pad when not in use
- Braided gear loops offer ideal access and gear management
- Contrasting web thread color aids in inspection
- Front lift assembly accepts connector for adding a chest ascender
- Integrated Fall-Arrest Indicator
- Corrosion-resistant hardware
- Two ANSI Z359.11 certified lanyard attachment loops at waist
- Attachment points at waist, back (lumbar), hips (positioning), chest (sternum), and back (dorsal)
- UL Classified NFPA 1983 (2012 ED) Class III Harness and ANSI Z359.1
- Weight: 2180 gram
- Waist belt: 80-130 cm
- Leg loops: 60-75 cm

All purpose Harness: - 02 nos

- Wide, flexible webbing
- Fully adjustable shoulder straps and leg loops for precise fit
- Ventral and sterna attachment D – rings
- Material (S): high strength polyester webbing
- Certification (s): EN 361:2001, EN358: 1999, EN 813: 2008
- Ideal for Fall arrest and Work Positioning
- Weight: 2410 Grams

Belay/Rappel Gloves- 15 Pairs

- Durable, double-layer goat leather protects palms, fingertips and the crotches between thumbs and index fingers
- Stretchy, abrasion-resistant mesh backs enhance fit and breathability for comfort
- Neoprene cuffs, with hook-and-loop wrap closures, secure gloves around wrists
- Reinforced carabineer holes at cuffs let you clip gloves to a harness or stored them on a belt
- Articulated, anatomic cut provides natural fit
- With the durability of work glove and dexterity of driving glove, the Cordex can be used for all types of rope work
- Fabric: Goat leather/ stretch nylon
- Weight: not more than 155 grams
- Type: Full Finger
- Size: Medium, Large and Extra-large (5 nos Each)

Climbing Helmet: 15 nos

For Head protection during working at height. Should have ventilation holes with adjustable sliding shutters allow air to circulate in the helmet when needed. Six point mesh head bend ensure comfort, and its centre

fit adjustment system adjust the headband and keeps it centred on the head.

- Injection-moulded ABS shell is lightweight and durable; expanded polystyrene liner absorbs impacts
- Open or close the sliding ventilation slots depending on the conditions
- Chin strap, nape height and headband adjust for a comfortable fit; headband adjustment folds into the the shell for compact storage
- 4 clips let you attach a headlamp (sold separately)
- Interior foam is removable and washable
- Size 2 headband circumference adjusts from 53 - 63cm
- Weight: 455 grams
- Certification; CE EN 12492 UIAA, ANSIZ89.1-2009 Type I Class C

Asymmetric Pear shape screw Lock Carabiner: 20 nos

Ergonomic shape for belaying with Munter hitch. Asymmetric pear shape facilitates opening and the manipulation of the locking system. Key lock system avoids any involuntary snagging of the carabiner. Manual screw gate system features red band indicator to show carabiner is unlocked, providing a quick visual safety check. Large gate opening eases clip-in and Recommended for dirty and dusty environments that can cause auto locking carabiner mechanisms to malfunction

- Type: Locking type
- Gate type; Screw – Lock
- Gate open Clearance: 27 mm
- Strength Major Axis Closed: 27 kN
- Strength Major Axis open: 8 kN
- Strength Minor Axis: 8 kN
- Dimensions: 116x80 mm
- Weight: 85 grams
- Certification(s): CE EN 12275

D-shaped locking Carabiner: 10 nos

Suitable for connection to equipment such as decenders or positioning lanyard.

Key lock system to avoid any involuntary snagging of the carabiner. Ensure an improved strength-to-weight ratio, protect marking from abrasion.

- Weight: 70 grams
- Type: B
- Locking System: Screw Lock
- Major axis strength: 27 kN
- Minor axis strength: 8 kN
- Open Gate Strength: 8 kN
- Gate Opening: 25 mm
- Certification(s): CE EN 362, NFPA 1983 technical use

Ascension Left and Right – 05 Pairs

Ergonomic moulded handle allows a comfortable powerful grip. Wide opening allows the handle to be easily grasped, even with thick gloves. Ergonomic upper part maximizes power when pulling with 2 hands.

Safety catch is totally integrated into the body of the ascender to help prevent **snagging**

- Toothed cam with self-cleaning slot optimizes the performance under any conditions, including frozen or dirty ropes
- Wide lower hole allows carabiners to be easily attached for clipping a lanyard and foot loop
- Upper hole for clipping a carabiner around the rope
- Fits Rope size; 8 – 13 mm
- Body Material; Aluminium/stainless steel/plastic/rubber/nylon
- Cam Material; Stainless steel
- Weight; 165 grams
- Certification: CE EN 567, UIAA

Multi- Purpose Device (MPD)- 02 nos

Variable-friction descent control device for rescue systems and rappels. Incorporates a high efficiency pulley with an integral rope-locking mechanism (ratchet) for a haul system. Built-in becket allows cleaner rigging and more efficient pulley systems. Allows main line and belay line rigging to be mirrored or twin-tensioned. Functions as both a lowering brake and as a ratcheting pulley for raising. Ideal for confined space operations because it converts rapidly to a retrieval line

- Model: 11mm
- Weight: 1.2 Kg
- Rope Size: 11mm
- NFPA Rating (Pully, Belay) : General Use
- NFPA Rating (Descent Control): Technical Use
- Pully strength: 44kN
- Descent Control Strength; 20 kN

3D Locking Bar Decender- 02 nos

Compact, lightweight design. 3-stage “locking” centre bar for added safety. Ambidextrous design allows loading from top or bottom or controlling descent from either side of device. Optimal rack length allows two rescue-sized carabiners to be attached without rope contact or friction from carabiner. Large horn size allows for easy addition or subtraction of friction, even on larger 13mm lifeline. Personal descender or use for one person or two-person rescue lowers. Simple to lock off device on either side. Straight feed design does not put twists in rope

- Allows attachment of rope while device is connected to a harness or anchor
- 100% aircraft-grade aluminium and stainless steel components
- Product weight: 481 grams
- Dimension: 178x102x32 mm
- Fits Rope Size: 9.5 to 13 mm
- NFPA Rating: General Use/Technical Use
- Strength: 22 KN/13.5 KN

Self-Braking Decenders- 2 nos

- Built-in braking spur which can be used to create extra friction during a descent without having to use an additional connector.
- Multi-function control lever with an automatic return mechanism. By manipulating the control lever, the operator can descend at a controlled speed, always keeping hold of the free end of the rope. The lever lets you stop the descent at the desired working position

without having to tie off the device, and can be moved to a stand-by position to prevent accidental opening.

- The Sparrow 200 is equipped with a safety decelerating system EBS (Extraordinary Braking System) that decreases the descending speed when the control lever is accidentally pulled downwards.
- The Safety Gate on the moving side plate helps prevent dropping the device and facilitates installation of the rope when passing intermediate anchors.
- Weight: 529 Grams
- Fits Rope Sizes; 11 mm
- Certified to EN 341:2011.2A
- Working Load Limit: 200 kg Max

Stop Descender: 01 nos

Self-braking function allows easily stopping and maintaining position.& facilitate on rope manoeuvres. Can be rapidly installed or removed from the rope without disconnecting it from the harness. Locking mechanism can be disabled with a carabiner when a hand is needed to negotiate a drop. Handle is squeezed to descend normally, controlling speed with the other hand; slack rope can easily be taken up.

- Material; .All control surfaces are stainless steel. with aluminium sheaves, steel cam can be replaceable if worn out.
- Fits Rope sizes: 9-12 mm
- Weight: 326 Grams

Pirana Canyon Descender- 02 nos

With Multiple braking options, can be installed on the rope without removing it from the harness. Designed for descent techniques. Snug fit creates a rigid carabiner / descender unit that helps to reduce risk of loading carabiner across the gate; also stays securely attached to harness to help prevent loss. Designed for use with the "Rapid" technique, which foils formation of a lark's head hitch around Pirana body and reduces kinks without curbing friction

- Material; Hot forged Aluminium body
- Fits Rope Size: 8-13 mm
- Weight: 90 grams

Figure of 8 Belay Device- 04 nos

Designed with belaying, compact and light weight. 8 belay Square shape device has a versatile dual-hole design that allows use with double or single ropes.

- Material; Aluminium
- Fit rope size; 8 to 13 mm
- Weight: 100 grams

GRIGRI 2 Belay Device: 02 nos

Works equally well for lead climber and top roping. Designed for decent control Handle design allows a very gradual release of the rope so you can lower a climber with excellent control.

- Material; Aluminium side plates, stainless steel cam and friction plate, reinforced nylon handle
- Weights: 170g
- Fits rope size: 8.9mm - 11mm
- Certification; CE EN 15151, UIAA

Crevasse Rescue Pulley;- 04 nos

Compact pulley fits easily in a pocket or can be clipped to your climbing harness so it's ready for an emergency. Base design keeps a prusik knot from jamming in the pulley when you're hauling; works well with prusik cord up to 8mm in diameter. Solid side plates prevent objects that could cause a snag from entering the pulley.

- Material: Nylon/stainless-steel rivet axle
- Fits Rope Sizes; Up to 13 mm
- Strength: 22 kN
- Side Plate Material: Aluminium
- Weight; 52 grams

Mini Prusik Pulley;- 02 nos

Pulley is light and compact enough to be worn on your harness yet tough enough to handle big loads. Aluminium sheave is mounted on sealed ball bearings for excellent efficiency

- Material; Aluminium
- Works with : 7 - 11mm diameter ropes
- Strength: 23 KN
- Side Plate Material : Aluminium
- Weight: 80 grams
- Certification: CE EN 12278 NFPA 1983

Mobile Pulley;- 02 nos

Main attachment hole accommodates three carabiners, two secondary holes on the sides for positioning and a large lower becket hole. Sealed ball bearings for high efficiency (97%) and intensive use at higher speeds

- Material; Aluminium alloy body and large sheave; stainless steel axle
- Fits rope; up to 16 mm
- Strength: 46 KN
- Weight: 297 grams

Fixed Pulley: 10 nos

Designed for hauling systems and deviations. Fixed side plates allow for quick installation on a rope and attachment to an ascender/rope clamp.

- Material; Aluminium
- Fits rope; 7 - 13mm in diameter
- Strength: 23 kN
- Weight: 90 grams
- Certification: CE EN 12278

Wing 2 Traveling Pulley: 02 nos

Attaching participants to a line or rope is fast and easy with the locking pivot mechanism; mechanism also ensures that the pulley cannot detach from the line while loaded. Efficient steel bearings roll smoothly and allow for high-speed fun; stainless-steel sheaves stand up to regular use.

- Material: Stainless steel, Side Plate material: Aluminium
- Fits rope: Up to 13 mm/ 12mm Cable
- Strength: 15 kN
- Weight: 336 grams

Edge Pad: 05 nos

- To help protect a fixed rope from abrasion
- Rugged, lightweight sheath without PVC
- Velcro clouser and clip for easy and quick installation

		<ul style="list-style-type: none"> • Weight: 95 grams <p><u>Edge Protector: 02nos</u></p> <ul style="list-style-type: none"> • Help protect a moving rope from abrasion. • Modules are connected with quick links • Each modules can be positioned independently to adapt to the terrain • Kit: 4 modules , 8 quick links • Weight: 1055 grams <p><u>Canvas Rope Protector: 05Nos</u></p> <ul style="list-style-type: none"> • Velcro closure • Provides protection to fixed ropes from limited abrasion • Can be secured to the structure as 'sheet' protection • Durable dual layer canvas construction • Secure installation using prussic type attachment or eyelets • Length 100cm x 15cm • Other Lengths available on request call for price and availability <p><u>Born Entry Ease: 02 nos</u></p> <ul style="list-style-type: none"> • The Entry-Ease changes the edge of a manhole into a smooth surface that a person or stretcher can slide over. • It fits entries as small as 18 inches (46 cm) in diameter and also works on railings, pipes, ladder rungs, or other surfaces with high friction or that may damage a lifeline. • Material: stainless steel • Product Weight: 2 Kg <p><u>Stainless Still Rescue Litter: 01 no</u></p> <p>Military-style litter with Stainless Steel Rescue Litter, featuring Durathene™ netting. Built with a back support moulded with polyethylene for durability, this litter still accepts standard-sized backboards. The framing of the Rescue litter allows for a narrower diameter by increasing the steepness of the sidewalls to increase manoeuvrability.</p> <ul style="list-style-type: none"> • The railings are full one inch diameter top rails. • With four quick attachment straps • Rectangular design. • It is UL Classified to NFPA 1983 – 2012 • Weight: 31 lb (14.1 kg) • Material: Stainless Steel • Top railing for easier extended carrying • Rectangular design • Length: 83 in (211 cm) • Width: 23 in (58 cm) • Height: 7.25 in (18.5 cm) • Load Rating: 11 kn (2,473 lbf)
21	Telescopic Aluminum Ladder (40 Feet)	<ul style="list-style-type: none"> • Rugged and durable: The ladder should be made of rugged (having rough irregular surface) and durable material (capable to withstanding wear and tear or corrosion). The ladder joints should make minimum noise during handling and carriage even after prolonged usage. • Foldable: The ladder should be foldable/ sliding and man packed by back harness provided with the equipment. • Weight capacity: The ladder even when extended to its

		<p>maximum required height should be able to withstand the weight of two fully equipped responder climbing simultaneously (i.e. 200 Kgs.)</p> <ul style="list-style-type: none"> • Non-reflective finish: The ladder should be non-reflective finish. Colour of the ladder will be specified by the user. • Grip: The rungs of the ladder should be designed to ensure better grip. The rungs should be securely locked with the static and non-loosen with use. All sections should be suitably serrated to provide better grip to hand and foot. The ladder should be equipped with adjustable shoe with buffer coating and at top and bottom ends to provide firm grip preventing slipping. • Machinist of extension: Suitable mechanism for easy extension and locking between all sections to be provided. • Hook in device: The ladder to be provided with hook in device at the top end to provide support during rescue operation. • Distance between to rungs: Distance/ Gap between two successive steps of ladder should be max 1 foot and minimum ½ foot. • Storage and operational condition: The ladder should be capable of opening between - 20⁰ C to +55⁰C and can be stored between - 30⁰ C to 6⁰C • Dimension: Length- Width - Minimum 0.35 mtr. <p>Note: The confirmation that the manufacturers are meeting the specification should be supported by adequate documents/ literature etc. These documents of all manufacturers offered be numbered and attached after all appendices and the numbering may be in condition.</p>
22	30 feet Extension Ladder	<p>Should meet the latest BIS regulations and there amendment thereof and tested, inspected, stamped and approved by Govt. of India.</p> <ul style="list-style-type: none"> • The standard lays down the requirements regarding materials, construction and workmanship, finish and acceptance test of aluminium double extension ladder for fire fighting and rescue operations. The constructed ladder to be reasonably rigid, strong and free from sway when pitched against a wall with the base of the ladder at 8 feet 3 inches (2.5mtr) from it and two men are ascending the ladder at speed or one is carrying another while descending the ladder. • Materials: The construction of the ladder should be made with a view to combine lightness with strength and durability, all metal parts must be either corrosion resisting or treated to resist corrosion. Aluminium alloy strings and rounds to be used for construction of the ladder to make it light in weight, rust proof, rot proof, fire proof. Nylon rope three strands, hawser laid rope confirming to IS: 4572 with breaking load of 2995kgs. To be fitted for extension and lowering the ladder. Locking pawls must be of aluminium alloy castings and should be fitted in S.S. 304 sheet metal boxes of 2mm thickness. Head wheels of fibre must be fitted at the top of the ladder. • Size: Fully extended length – not less than 10.5mtr Closed length – not more than 06.25mtr Overall width – 535mm Weight – not more than 56kgs Steps – 40 in full ladder <p>Description:</p>

		<ul style="list-style-type: none"> • The ladder must consist of one main and one extending section, the width of the narrowest section inside the strings being not less than 12” (305mm). Strips may be plain or of built-up construction with trussing, any trussing must be on the underside of the ladder when it is in operational use. • Rounds must be of square cross section and must be provided with non-slip treads raised above the surface of the rounds, to be placed at 12” (300mm) centre to centre. • The design of the ladder must be such to ensure easy sliding of extending sections without excessive clearance in the guidelines, no lubricants must be used for means of extension; nylon rollers must be used for this purpose. • Extending sections must be guided throughout the full range of extension in such a manner that it cannot separate. • Ladder must be capable of being fully extended by two men by means of rope over a pulley on the main section, so as to leave the working face of the ladder unobstructed. • The ladder is extended by hand the rope must be less than 2” or 12mm dia. (36mm) circumference to provide a convenient grip and must be reasonably flexible when wet. • The end of the rope must be attached to the bottom of the main section so as to leave the minimum amount of slack when the ladder is fully housed. • Safety limits must be fitted for preventing over extension of the ladder. Dual action automatic locking pawls must be fitted to hold the ladder at any position of extension at which the rounds on the main end. • The extending section coincides, preferably so arranged that they engage automatically, release being effected by slightly extending the ladder before lowering, the action of the pawl being such that they are set for engagement until they have been rested on a round and trip to clear immediately as the ladder is extended. • The heels of the stiles or strings of lower section shall be fitted with rubber feet. Steps to be fitted by separate rivet and the sides of the ladder to be kept open to view the condition of the rivet fitted inside the steps. • It is essential that the standard of workmanship is such that spares can be provided for all replaceable arts and that they will fit without difficulty. • Finish must be good, that any surface of the ladder such as strings or rounds must not be buffed as the ladder will reflect light and thus cause difficulty in rescue operations, reflective dual colour strips should be pasted on the complete length of the ladder section.
23	Fire extinguisher 4.5 kg CO ₂ type	<ul style="list-style-type: none"> • CARBON DIOXIDE TYPE Fire Extinguisher capacity as per IS 15683:2006. • complete with all the fittings and accessories with ISI Mark, CE Approved Cylinder made up of Seamless Aluminium (6061 Alloy), • Confirming to Luxfer Make Seamless Aluminium CCOE Approved & ISI Marked (IS 15660), with Squeeze grip Valve conforming to IS: 3224 ISI Marked and CCOE approval complete with initial charge. The Extinguisher should powder Coated with Fire Red with High Quality, RAL (3000) Epoxy Powder Coated for long

		<p>lasting Finish, gross weight of the extinguisher should be 13 Kg. Maximum, the extinguishers components should be tightened with a Torque Tightening Machine, temperature range: -30⁰ C to + 55⁰ C fire rating 21B. Temperature Range:- 30⁰ C to +55⁰ C Fire rating 21B.</p>
24	Forcible Entry Tools	<p>General Requirement : The Portable kit should enable the user, opening of every door (both inward and outward) and cut open of every bar in the urban environment. The full kit will be carried up and operated by only 2 operators</p> <p><u>The kit</u> The kit will contain: Manual pump, Door breaker for both inward and outward doors, Spreader, Cutter, Jimmy bar 2 back packs All tools will be arranged inside two back packs in a way that will enable fast operation All tools will have quick disc connectors for fast connection to the pump All tools will have the ability to be operated with manual and electro-hydraulic pump.</p> <p><u>Manual pump :</u></p> <ul style="list-style-type: none"> • Pressure build up - two stage operation • Close loop - no breather for pressure release. • Weight with 2.5 m Hose 1/4" – less than 10 kg • Oil capacity – not less than 700cc • Operation system - Hand and foot • Working pressure – Minimum 500 bars • Pressure safety relies – 500 bar +- 5% • Weight : 10 kg <p><u>Door breaker :</u></p> <ul style="list-style-type: none"> • Weight – Not more than 4.1 kg • Working pressure – Minimum 500 bars • Length closed – less than 450 mm • Length Opened - not less than 600 mm • Stroke – not less than 260 mm • Lifting force – Minimum 6.2 ton <p>The door breaker should be able to break open both the inward opening and outward opening doors.</p> <p><u>Spreader :</u></p> <ul style="list-style-type: none"> • Weight – Not more than 4 kg • Working pressure – Minimum 500 bars • Arms closed – Not more than 4 mm • Arms opened – more than 80 mm • Cylinder pressure capacity – 6 tone <p><u>Cutter :</u></p> <ul style="list-style-type: none"> • Weight – Not more than 5 kg • Working pressure – Minimum 500 bars • Cutting capacity treated steel – Minimum 22 mm • Cutting capacity untreated steel – Minimum 22 mm • Cutting force – Minimum 15 tone <p><u>Jimmy bar :</u></p> <ul style="list-style-type: none"> • Weight – Not more than 0.7 kg

		<ul style="list-style-type: none"> • Length – Not more than 360 mm <p>Back packs : Made from high quality fabric and military standard zippers. Dedicated position to every tool inside the back packs with quick tightens and relies bands. The back packs will enable the user to carry it on the back or in the hand like suitcase.</p>
25	Lifting Bag	<ol style="list-style-type: none"> 1. The Pneumatic Lifting Bags should be portable and lightweight, and should be in set form, consisting of bags, hose assemblies, Pressure gauges, pressure reducers, safety valve, Air bottle connector, and controller. 2. Each set of high pressure airlift bags will an air-jacking system comprising two bags each on 5 sizes in term of maximum lift capacities, i.e. a total of 10 bags, with accessories. The totalled maximum lift capacity of one bag from each size should be in the range of 350 to 370 metric tons. The individual sizes should range between the maximum lifting capacities indicated below. <ul style="list-style-type: none"> • 1 to 1.5 tons • 4 to 5 tons • 6 to 8 tons • 10 to 12 tons • 20 to 22 tons • 30 to 35 tons • 47 to 50 tons • 55 to 60 tons • 75 to 80 tons • 95 to 100 tons 3. Each set will be provided with the following accessories to operate up to eight bags at a time:- <ul style="list-style-type: none"> • 8 inflation hoses 5 m long in four different colours (two each) with push lock couplers. • 8 inflation hoses 10 m long in four different colours (two each) with push lock couplers. • 2 dual control box/unit (Plastic Box), 12 bar, deadman • 4 single control units, 12 bar • 4 pressure reducers for air cylinders 200/300 bars. • 8 shut of houses with safety valve and 0.3 m hose • 6 compressed air cylinder 300 bar, 5 to 6 liters • 2 connection pieces for air cylinders 4. The bags should be of multiple layers of Kevlar. Aramid construction. Bags should be square/ rectangular in shape. The insertion height of the bags should not exceed 25mm. The set of bags should provide lifting options from a minimum of 7 cm for the smallest size to more than 50 cm for the highest size. 5. They should have anti-slip surfaces to provide good grip and high traction between the bag and surface of object to be lifted as well as when stacked on top of each other. Markings for centering should be provided along with fluorescent labels at corners for recognition in the night. Each bag should have its own storage bag. 6. Operating pressure 12.0 bars. Bursting pressure should not be lower than 48 bars. Testing pressure to be flowed will be 1.5 times the operating pressure.

		<p>7. Operating temperature – 20 to 50 degrees centigrade.</p> <p>Standards:- Equipment must conform to DIN EN 13731 standards for LIFTING BAGS and certifications will be submitted with tender.</p>																						
26	Rope Deployment System	<p>The line throwing device shall be specifically designed to deploy a line only or an auto-inflating flotation sling and retrieval line to an otherwise inaccessible point in both land- based and maritime environments, providing an emergency response capability without putting the rescuer at risk.</p> <p>The line thrower shall be especially useful for rescue where a heavy line is required or long distances must be breached. Operational lines can be established with ease for a variety of applications including high or low angle rescue, construction projects, and ship-to-ship line deployment.</p> <ul style="list-style-type: none"> • It should utilize air- thrust launcher technology and shall be non-pyrotechnic, reusable and refillable. • Launcher housings should be injection- moulded from polycarbonate for durability and high impact resistance. • Two manual back-up systems on the auto- inflating sling should assure fail- safe inflation. <p>As a water- rescue device it should deliver an auto- inflation flotation sling and retrieval line to a victim in the water.</p> <p>Inbuilt safety feature: The safety mechanism on the launcher shall remain “always on”, resetting automatically when a projectile is inserted. The projectile’s “Push- Click” engagement shall allow easy reloading, even in the dark.</p> <p>A pressure relief burst disk shall prevent unsafe pressure build-up that could result from exposure to extreme heat.</p> <p>The line thrower shall come with in-built Folding Stock. A folding stock is standard for greater accuracy of deployment and shall serves as a convenient carry handle in the collapsed position.</p> <p>The line thrower device shall come with</p> <p>Launcher</p> <table border="0" data-bbox="507 1361 1268 1787"> <thead> <tr> <th style="text-align: left;">Specification</th> <th style="text-align: left;">Measurement</th> </tr> </thead> <tbody> <tr> <td>Length (folding stock closed)</td> <td>16.8 in 42.5 cm (minimum)</td> </tr> <tr> <td>Length (folding stock open)</td> <td>28.7 in 72.9 cm (minimum)</td> </tr> <tr> <td>Height (folding stock closed)</td> <td>13.2 in 21.6 cm (minimum)</td> </tr> <tr> <td>Height (folding stock open)</td> <td>8.5 in 33.5 cm (minimum)</td> </tr> <tr> <td>Barrel width</td> <td>3.4 in 8.6 cm (minimum)</td> </tr> <tr> <td>Weight</td> <td>1.5 KG. (minimum)</td> </tr> <tr> <td>Launcher housing</td> <td>polycarbonate</td> </tr> <tr> <td>Colour</td> <td>red</td> </tr> <tr> <td>Shape</td> <td>irregular</td> </tr> <tr> <td>Internal mechanism</td> <td>stainless steel</td> </tr> </tbody> </table> <p>Sling Projectile</p> <p>The sling projectile shall deploy an auto-inflating flotation sling and retrieval line to a victim in the water. The auto-inflatable sling shall be fitted with a water-activated device which inflates the sling automatically on contact with water, providing sufficient buoyancy to support a 300 Lb. / 136 kg victim.</p>	Specification	Measurement	Length (folding stock closed)	16.8 in 42.5 cm (minimum)	Length (folding stock open)	28.7 in 72.9 cm (minimum)	Height (folding stock closed)	13.2 in 21.6 cm (minimum)	Height (folding stock open)	8.5 in 33.5 cm (minimum)	Barrel width	3.4 in 8.6 cm (minimum)	Weight	1.5 KG. (minimum)	Launcher housing	polycarbonate	Colour	red	Shape	irregular	Internal mechanism	stainless steel
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Standard Line Projectile

The standard line projectile shall deploy a variety of line over a range of distances, depending on the service pressure and the type of line used.

Part	Length	Diameter		Weight		Cover material	colour	
	In	cm	In	Cm	lbs			Kg
Standard line projectile	13.4	34.0	2.375	6.03	1.8	0.8	Polyethylene	Black
Sling projectile	23.5	59.7	2.375	6.03	2.8	1.3	Polyethylene	Red

Projectiles shall be made from 6061- T6 Al, have a black powder-coat finish and a service pressure of 3,000 psi.

Nozzles shall be stainless steel; Nozzle protectors shall be black glass-filled nylon.

Sling shall be yellow, made of nylon and shall be equipped with auto-inflating mechanism and manual-inflating oral tube.

Suitable streamline filler hose

The streamline filler hose shall be used to deliver compressed air from a high-pressure air compressor, an SCBA tank or a SCUBA tank to a projectile. This provides the “charge” for the projectile.

Specification	measurement
Overall length	42.8 in 108.6 cm (min.)
Hose diameter	0.5 in 1.3 cm (min.)
Total weight	2.2 lbs 1.0 kg (min.)
Overall service rating	5,000 psi 345 bars (min.)
Hose material	nylon and aramid fibre
Hose finish	black urethane
Filler block material	6061- T6 aluminium
Filler block finish	black anodized
Bleed screw	stainless steel and nylon
Adapter	stainless steel

Ropes/ lines

It shall come with Dacron messenger line of 3 mm and total length of 152 meters which allows for long range horizontal deployment distances of min 110 meter. This line can be used to tow larger, stronger ropes across a body of water or from ship-to-shore. Minimum breaking load for Dacron line shall be 225 kg.

It shall also come with polypropylene line of 6 mm and total length of 100 meters which has stronger test strength of 1,100 Lbs. / 500 kg and minimum horizontal deployment distance of 50 meter and is intended to be used in water-based operations which require the line to float. This line, when coupled with the sling projectile, becomes an effective way to assist a distressed swimmer who may be caught in a rip tide by delivering the sling within seconds. The Auto-inflating sling has a mechanism which inflates the sling on contact with water. Minimum breaking load for polypropylene line shall be 500 kg.

		<p><u>Line Containers</u> Line containers may be irregularly shaped and made of polyethylene with a black finish. Hinges must be stainless steel. Compact line container weight: 1.8 Lbs. / 0.9 kg. max.</p> <p><u>CORDURA Kit Carry Bag for Storage of Line Throwing Device</u> The rugged CORDURA fabric carry bag shall be designed for durability and convenience. The bag shall features two external and one internal zippered storage pockets, reinforced water- resistant vinyl bottom and reflective strips.</p> <p>Kit contents;</p> <ul style="list-style-type: none"> • 1- Launcher (Red) • 1- Sling projectile with 4 spare burst capsules • 2 sets- CO₂ and Bobbins- pack of 5 each • 1- Standard line projectile (with 2 spare covers)- 3000 psi • 1- 1100 lb. test 6 mm polypropylene (328 ft./ 100 m) with compact line container • 1- 500 Lb. test 3 mm Dacron line (500 ft./ 152 m) with compact line container • 1- Nozzle protector 5 pack • 1-O-ring kit 10 pack (various) • 1- Corrosion block • 1- Operator's manual • 1- Training CD • 1- Filler hose • 1- Carry Bag <p>Standard:</p> <ul style="list-style-type: none"> • The item and accessories should be new, unused and conform to the latest design and specifications. <p>The manufacturer should have ISO Certification and it must be submitted with offer.</p>
27	Chain saw one man operated	<p>Petrol driven portable power saw having 2 stroke petrol engine displacement 85 to 95 cc, engine power 6.3 to 7.5 hp, RPM-13500(Max.), 24"/610 mm guide bar, a high performance low vibration chain with square corner chisel cutters having pitch of chain to be 3/8". Weight to power ratio should not be more than 1.5 kg /Kw, vibration at front and rear handle should not be more than 7.0 m/second square, it should designed to absorb less dust at air filters for avoiding frequent clogging, semi- automatic pull cord type start, with all control and safety device of reputed make. It should be light weight (it should be easy to carry/ transport, handle and operate by a person).</p> <p>The item to be new, unused and suiting to latest designed and specification and may have certification of ISI/ISO/or any recognized international standard/ national standard of quality test certificate.</p> <p>Accessories-Sturdy gloves-1 set, gum boots-1 set, Apron-1 no., Ear plug-1 set, Goggles-1 set, Helment-1 No. extra guide bar and spare chain-2 nos.</p>
28	Chain Saw Two Men operated	<ul style="list-style-type: none"> • Body: die cast aluminium • Motor: Power-5HP, 3Phase, 415 V A.C, RPM-2800 or more. • Guide bar length- 39 inch and above • Cutting capacity: 320 cms

		<p><u>Accessories:</u></p> <ol style="list-style-type: none"> 1. One 48” guide bar. 2. Plug socket, toolkit, and lubrication oil, file and filing guide with handle.
29	Lifting & Pulling Machine	<p>Come along system should be of steel or hard aluminium alloy consisting three major part i.e. base, mast and boom. The system should provide a safe secure anchorage for confined space entry. The exist and rescue work, the system should be completely collapsible and portable for advantage of easy transportation. The system should be corrosion resistant. All adjustment should be on key plug easy to assemble and dismantle without any tool. The rated capacity in term of working load should be more than 200 kg... The complete system should have compliance of European standard or should have certification from NABL approved lab for safety factor.</p> <p>Tendered should supply ascending descending Device/ winch, necessary handle rope, rescue stretcher and full body harness along with system. Ascending descending device/winch should work on principle of wrap or contract friction.</p> <p>Ascension handle should be made up of light-forged aluminium alloy. The handle grip should be comfortable forged aluminium alloy. The handle grip should be comfortable with thermal insulation. Rope should be made of polyamide. The breaking load of rope should be more than- 24 KN. (without connection) and more than- 18 kn. (with end connection). The rope diameter should be 9 mm to 12 mm only.</p> <p>Rescue stretcher should be made up of fibre/ light-weight aluminium alloy. It should be in bucket shape with sufficient number of steps to hold casualty. It can be lifted vertically and down. Full body harness should be complied with EN. 361/358.</p> <p>Standard:</p> <ul style="list-style-type: none"> • The equipment and accessories should be new, unused and should conform to latest design and specification. • Required standard certification must be provided with offer with indicating make and model
30	Hydraulic Combi Tool with Power Pack/Electro hydraulic combi tool	<p>Hydraulic Combi Tool shall be operated by an electrical cable with back-up of incorporated rechargeable battery as power pack. No separate hoses or external hydraulic power units are acceptable. Tools with outside (external) separate batteries are not accepted.</p> <p>This electro hydraulic combi tool shall have minimum working pressure 700 bar, minimum cutting force 360 KN., minimum cutting dia. 30 mm round, minimum spreading force 35 KN., minimum spreading distance 360 mm, minimum pulling force 41 KN., minimum pulling distance 360 mm. The EN 13204 & NFPA certificate should be provided with the offer. The certificate should be enclosed with the offer. The pulling chain set shall be quick adjusting without the need & special tips for pulling. The pulling chains shall be equipped with safety hooks in order to mount the chains easy to any object of whatever size or shape. The maximum weight shall not exceed 21 Kg.</p> <p><u>Accessories:</u> rechargeable battery- one no- Li/Ion which provide constant power to the toll without affecting its performances. The operation time not less than 30 minutes. The charging time battery should not more than 70 minutes. 3 electric power supply cable- can be connected any AC power outlet. The cable has to be equipped with electric power equalizing filter to hold the voltage constant even in the event of power fluctuation. High efficient electric rectifier from 110/ 230 V AC to 26 V DC protected by an impact resistance click in adopter fixed on</p>

		<p>the tool. The control cable shall be protected and highly insulated to withstand rough handling during rescue operation. The equipment & accessories should be new, unused and should conform to latest design & specifications.</p> <p>Standard: Required necessary certification must be provided with offer.</p>
31	Hydraulic Rescue Spreader with Power Pack/Electro Hydraulic Rescue Spreader	<p>The spreader shall be operated by an electrical cable with back-up of incorporated rechargeable battery as power pack. No separate hoses or external hydraulic power units are acceptable. Tools with outside (external) separate batteries are not accepted. The energy pack shall integrated tool itself. This heavy duty electro-hydraulic rescue spreader of minimum spreading opening shall be not less than 600 mm, the pulling distance shall be not less than 450 mm, maximum spreading force shall not be less than 100 KN, minimum pulling force 25 KN, the pulling chain set shall be quick adjusting without the need and special tips for pulling. The pulling chain shall be equipped with safety hooks in order to mount the chains easy to any object of whatever size or shape. The operational weight of the spreader shall not be more than 23 KG. The spreader shall be operated by an electrical cable and incorporated rechargeable battery. The spreader to be as per EN 13204 and NFPA certified, the certificate should be enclosed with the offer along with chain set.</p> <p>Accessories: 1. spare blade- 1 sets, rechargeable battery- one no- LI/ Ion with spare battery which provide constant power to the tool without affecting its performances, the operation time not less than 30 min. The charging time of the battery should not more than 70 minutes. 3. Electric power supply cables- can be connected any AC power outlet. The cable has to be equipped with electric power equalizing filter to hold the voltage constant even in the event of power fluctuation. High efficient electric rectifier from 110/ 230 V AC to 26 V DC protected by an impact resistance click in adopter fixed on the tool. The control cable shall be protected and highly insulated to withstand rough handling during rescue operation.</p> <p>Standard: Required necessary certification must be provided with offer.</p>
32	Hydraulic Rescue Cutter with Power Pack/Electro hydraulic rescue Cutter	<p>Equipment shall be tested for safety according to EN 13204 (European standard) and NFPA 1936 (US standard). Certificates shall be provided with the offer. This specification defines the technical and functional requirements for an electro/ hydraulic rescue set operated only by integrated internal hydraulic power supply to be used for rescue operation by fire brigades and special rescue teams in case of traffic accidents, building collapse and natural disasters confined space rescue , high raise building rescue etc.</p> <ul style="list-style-type: none"> • The equipment shall be able to work without failure in heavy dust, high humidity, heavy tropical rain conditions and temperatures from -25°C to +70°C. • The equipment shall be completely independent from any external hydraulic power unit or hoses and shall be operated independently from each other by an electric power cable with tool adapter with back up of a rechargeable high capacity LI / Ion Battery. <p>The cutter shall be operated by an electrical cable with back up of incorporated rechargeable battery only. No separate hoses or external hydraulic power units are acceptable. Tools with outside (external) separate batteries are not accepted.</p> <ul style="list-style-type: none"> • The cutter shall have curved design blades with the highest

		<p>cutting performance in the effective cutting range and shall be able to cut round steel bars up to a diameter of not less than 30mm. Working pressure: minimum 700 bars.</p> <ul style="list-style-type: none"> The blades shall be designed to set the material to be cut in the optimal cutting position and the material cutting process shall be as smooth as possible w/o mechanical impact. Straight blades are not permitted The blades shall be dropped-forged of high tensile tool steel, well grinded for optimum grip, high-pressure glass-pearl blasted, fully hardened, surface treated, regrind able and easily replaceable. The blade opening shall be not less than 150 mm. Operational weight : not more than 20 kg Classification according to EN 13204. BC Cutter G Cutting class Classification according to NFPA “ A7 / B8 / C6 / D 7 / E 7 Certificates must be provided with the offer. <p>Accessories</p> <p><u>Rechargeable Battery</u></p> <ul style="list-style-type: none"> Each individual electro/ hydraulic tool shall be supplied with a back up rechargeable high capacity LI / Ion – Battery w/o memory effect which provides a constant power to the tool for an Intermediary Rescue Scene operation time of not less than 30 Minutes. In addition spare battery to be supplied with each tool. LED – Light on the Battery shall indicate the charging state. The recharging time of the Battery shall no longer than 70 minutes. The self discharge of the battery shall be as less as possible The battery shall be fixed on the tool by a clip mechanism which must withstand rough handling and cutting impacts. <p><u>Electric Power supply cable</u></p> <p>The electric power supply cable shall be equipped with :</p> <ul style="list-style-type: none"> an electric power equalizing filter to hold the voltage constant even in the event of power fluctuation a high efficient electric rectifier from 110 / 230 Volts AC to 26 Volts DC protected by an impact resistant click in adapter fixed on the tool. The rectifier adapter shall be replaced easy and fast by the rechargeable battery w/o the use of special tool but only by click mechanism. The control cable shall be protected and highly insulated to withstand rough handling during rescue operation . The electric power supply cable shall be connected to any AC power outlet 110 V / 230V. Either directly or through an electric reel no matter of which length. Electrical extension cable of minimum 25m shall be provided with each tool. <p>Spare Blades - 1 pair</p>
33	Gas Cutting Equipment Complete set	<p>The portable cutting torch shall be used by everyday liquids such as gasoline, diesel or kerosene. These liquid fuels, portable packages, provide operators with the opportunity to reduce the operational safety hazards, take advantage of greater performance capabilities, and reduce the operational costs. The portable cutting system shall be rugged, field cutting torch system that provides operators with the entire component necessary to contact rapid hot cutting operations. Ideal for rescue or tactical use, these robust tools offers the same massive power and</p>

		<p>performance as the largest industrial system, but with the small footprint. It slices through the steel like knife, jumping air gap, cutting through layers, punching deep holes, in seconds. It cuts everything from thinnest steel up to 14 inches.</p> <p>Tenderer must have service centre in Odisha and must submit all supporting documents evidencing the same.</p> <ul style="list-style-type: none"> ➤ Automatic shut off ➤ Gas cutter heads and tips shall be produced a refrigeration (cold) effect <p>PERFORMANCE:</p> <ul style="list-style-type: none"> ➤ Multilayer cutting efficiency ➤ Allows cutting where optimal position is not possible. ➤ Higher level of oxidation. ➤ The flame temperature of the gas cutter ranges not less than 5000 degrees Fahrenheit (forceful flame). <p>The package shall not be includes a trans-fill cable for field expedient filling of the jumbo-D bottle form large bottle, as well as a adopter to allow operators to use medical oxygen bottles.</p> <p>Comprising of main components as under:</p> <ul style="list-style-type: none"> ➤ Liquid fuel torch (20 inch, 90 degree) ➤ (3) cutting tips (0, 81 & 83) ➤ Liquid fuel hose (20 foot) ➤ Oxygen hose (whip line- 20 foot) ➤ Liquid fuel tank (2 quart) ➤ (2) fuel quick disconnects ➤ (2) oxygen quick disconnects ➤ Oxygen flashback arrestor ➤ 23 cubic foot CGA 540 industrial oxygen bottle ➤ Medium duty oxygen regulator (CGA 540) ➤ Heavy duty igniter ➤ Carry case with bracket ➤ Filler pigtail ➤ Medical yoke adaptor ➤ Spare part kits ➤ Tool kit ➤ Adjustable wrench ➤ Welding gloves ➤ Safety glasses (shade 5) <p>Standard: The equipment and accessories should be new, unused and should conform to the latest design and specifications. Approved/ Certification: UL Certified</p>
34	Bullet Chain Saw	<p>Carbide Tipped Chain Saws shall be petrol engine driven designed to cut through different building material like timber, masonry, metal sheets, FRP, PVC etc (but not concrete). These shall be extremely useful for first responders for inspection, ventilation and obtaining access to victims during CSSR and for other tasks relating to extrication and recovery during natural and manmade disasters.</p> <p>Two stroke single cylinder air cooled petrol engine with a minimum displacement of 76cc and engine should have to develop 6.0HP minimum. The rated engine speed at no load condition maximum up to 13500 rpm. It should have electronic ignition system with one button start ON/OFF.</p>

		<p>Guide bar length should be within 14-20 inch.</p> <p>Cutting chain Shall be carbide tipped with locking Key pitch 3/8" gauge with heavy duty tie straps and tempered rivets. Fully automatic, speed controlled reciprocating oil pump and additional manually adjustable chain lubrication system. Automatic chain brake system for quick stoppage when required. An arrangement for adjusting chain tension shall be available.</p> <p>It should have suitable provision for setting and adjusting depth of cut.</p> <p>Gross Weight of the equipment with guide bar and chain including fully loaded fuel tank should be less than 12 kg.</p> <p>Sound pressure level at operator's ear should be less than 105 dB (A).</p> <p>Fuel tank capacity should be less than 1ltr.</p> <p>Brochure and test report should be submitted in accordance to ISO/ CE or any National/International standard for conformity of the specification.</p>
35	Log Carrier	<p>It is a sturdy two-man timber carrying tool for moving logs around the cutting side. Textured rubber grips for easy, no-slip, holding handle is 54 inches (135 cm long). The log carrier should be provided with log handling tools. The log handling tools are an absolute must to move, lift, leverage and roll logs around the cutting site. Norwood's cant hook, peavey and log-carrier feature strong yet light-weight aluminium handles and heat treated zinc-plated hooks that grab hard. Painted Norwood orange colour for high visibility around the woodlot. These are modern premium quality versions of the tried, tested and true traditional tools used by generation of loggers.</p> <p>Descriptions:</p> <p>Cant hook- Designed to turn and roll logs while on the site. The cant hook is nimble and easy to handle grips 8 inches to 32 inches (20 CM-8 CM) Diameter logs, Peavey- Indispensible for rolling logs around the woodlot and on to the storing place. Jab the peavey point in to the ground to gain extra torque for log rolling 42 inches (105 CM) handle gives good leverage without being cumbersome grip 8"-32" (20 CM- 8 CM) diameter logs. Lift hook- Saves lifting logs by hand especially helpful in wet weather.</p> <p>The item should be new, unused and should conform to the latest design & specification.</p> <p>Required certification shall be provided with offer for safety point of view.</p>
36	Nylon Rope	<p>The nylon rope 12 mm dia., 50 meter length rescue line of (50 meters) length long, 1 inch dia., 3 inches circumference of 3 standard polyimide multi-filament ropes confirming to IS- 4572-1992. It should be flexible which can be used suitably during rescue operation. The bidder must have to furnishing manufacturer certificate.</p>
37	Sisal Rope 12mm/24mm	<p>Standard the sisal rope of 24 mm dia, 3 inches circumference, 50 mt. length linear breaking load of minimum 3.6 kg.</p>
38	Fire Axe	<p>Axe is of carbon forged steel with chromium plated head confirming to IS:926 , Handle Moulded highly insulated weight 3 Kg.</p> <p>Rubber Weight: 3 Kg (Max), tested voltage 20,000V</p>
39	Axe	<p>It should be a forged product made from high carbon material.</p> <ul style="list-style-type: none"> • Overall length- 200 mm, • Weight not less than 1.5 kg with handle from reputed make.
40	Crow Bar	<ul style="list-style-type: none"> • Size/ length- 36" • Diameter of rod- 1"

		<ul style="list-style-type: none"> • Material- made of tempered steel • Attachment- claw attachment for removing • The bar shall be heat treated to obtain a minimum hardness. • Material shall be suitable quality steel such as wrought steel. • The bars shall be forged clean and in one piece. • Cutting ends of the bar may be rounded off and finished ground. <p>The item must be from reputed make</p>
41	Pick Axe	<ul style="list-style-type: none"> • It should be made of iron alloy and fitted with Sal wood handle not less than 1 meter. • The pick axe should be reputed brand bearing BIS mark which can be used for cutting and digging purpose during fire fighting and rescue operation.
42	Spade	<ul style="list-style-type: none"> • Spade should be rectangular shape with provision to incorporate wooden handle. The material used for fabrication should be iron of suitable grade (Reputed Make).
43	Traffic Cone	<ul style="list-style-type: none"> • Traffic cones should be made by suitable and durable plastic. • The base of which should be heavy rectangle to provide stand alone. Suitability with conical body of height not less than 2 feet. • It should be painted with orange fluorescent paint with retro-reflective strip of 1 to 2 inch width around the conical body at suitability height (Reputed Make).
44	Back-hoe Loader cum Excavator with Rock Breaker & Accessories	<p>(A) <u>PHYSICAL SPECIFICATION</u></p> <ol style="list-style-type: none"> 1. <u>Performance specification:</u> The excavator cum backhoe loader shall be employed for excavation, digging, demolition grading and finishing job. The equipment shall be rugged and of sturdy construction, capable of working continuously and successfully under adverse working conditions. 2. <u>Prime Mover:</u> The prime move shall have the following specifications: (a)Engine: Water-cooled, diesel engine of BEML/ TATA/ JCB/ Kirloskar / Cummins or any reputed make conforming to ARAI/BIS/BS/ DIN/SAE standards. (b) Power Output: 70 HP or more at rated RPM. (c) Starting System: 12/24V electric system with suitable battery and alternator. 3. <u>Main frame Chassis:</u> The main frame shall be very strong and robust enough to withstand extreme working stresses. 4. <u>Transmission Unit:</u> With 4 or more forward and minimum 1 reserve gear with 4 WD. The transmission shall be internationally accepted with torque converter. There shall be a provision for changing from 2 wheel drive to 4 wheel drives. 5. <u>Axle with Steering Arrangement:</u> The front Axle shall be centrally pivoted, oscillating type and shall be designed for continuous loading cycles and shall ensure excellent manoeuvrability. 6. <u>Brake System:</u> The service brake should be hydraulically/pneumatically activated dual line each LH and RH self adjusting. The brake system should conform to CMVR norms. The parking brake should maintain the parking performance on its application and it should be easily

		<p>applied by the driver. The break system should be designed in such a way so as to protect itself from dirt, water, mud etc.</p> <p>7. Electrical System: It should be 12/24 volt and to be powered by alternator and batteries. The complete system of the equipment shall cater for safeguards against short circuits and over voltage. Separate searchlight to illuminate the surrounding area of the vehicle should be provided at an appropriate on the cabin.</p> <p>8. Hydraulic System: The components of the hydraulic system should be a tank, pump. Control valves hydraulic lines and filters as per the design of the manufacturer. The filter elements in the return line of the system filling strainer shall be provided to filter of the hydraulic system and for its protection.</p> <p>9. Steering System: The equipment should have hydraulically operated steering system.</p> <p>10. Rock Breaker: The equipment should have rock breaker of standard size.</p> <p>11. Operator's Cabin: It should be so designed to serve the intended purpose of operator's safety and comfort and it should conform to the ISO standards. The operator's seat should be so designed to ensure easy operation of all lever positions. The seat should be vertically and horizontally adjustable, revolving, reclining type with armrest movable with or without control levers.</p> <p>12. Excavator: excavator should consist following main components: a. King Post b. Boom c. Dipper d. Bucket</p> <p>13. Loader: The loader shall consist of a bucket pivoted on end of a pair of hydraulically operated arms. The loader arms shall be of self-levelling type. The bucket capacity of the loader shall be minimum 1.00 Cu.m.</p> <p>14. Stabilizers: Two stabilizers shall be fitted at the rear end of the machine. The stabilizers shall be hydraulically operated. Each stabilizer having its own control shall be operated independently at different height.</p> <p>15. Access System for Excavator cum Loader: (a) Access system for Excavator cum Loader may include platform, grab rail entrance opening. (b) The design of these devices and means of attachments should provide adequate strength for the purpose intended.</p> <p>16. General Requirements: (a) Rotating and Fixed shafts/Axles: The shafts and axles shall have ample rigidly and adequate quality. (b) Hardware Items: All the hardware items shall be galvanized/ surface treated as per manufacturer's design. (c) Instruction Plate / decals: The machine shall have instruction place/ Decals permanently affixed at suitable location, indicating precautions and any special important</p>
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procedures to be observed in operation the machine.

17. **Miscellaneous:**

(a) Bearings

Shall be of a standard reputed make with BIS certification/international standards.

(b) Battery

Shall be maintenance free, of standard reputed make like Exide Furukawa, Amaron and SF with BIS certification/ International standards. According to ambient temperature the capacity of the battery should be as under.

Ambient Temp	Battery Capacity 12 Volt	Battery Capacity 24 Volt
Above + 10	135 AH	Two batteries of 12V 80-90 Amp-hr in series
Below +10 and Down to -20	180AH	Two batteries of 12V,120 Amp-hr in series

The manufacturer/Authorised dealer shall supply all the technical literature like operation and maintenance manual for engine and equipment. Workshop manual for engine equipment, illustrated part catalogue, lubricant chart of complete equipment in English in hard and soft copy.

(B) TECHNICAL SPECIFICATIONS OF EXCAVATOR-CUM BACKHOE LOADER

I)Excavator Parameters:

- a. Digging Depth 4.20 meterr more
- b. Reach-ground level to rear wheel centre 6.7meter or more
- c. Maximum working height(stabilizers) 5.20 meters
- d. Bucket rotation 180 Degree or more
- e. Bucket digging/breakout force 5500 Kg or more
- f. Bucket capacity 0.25 Cu.m or more
- g. Load over height 3.3 meters or more
- h. Side reach to centre of machine 6.00meters or more

(II) Loader Parameters

- a. Dump height 2.65meters or more
- b. Load Over Height 3.5 meters or less
- c. Dump Angle 43 degree or more
- d. Loader Bucket Capacity 1.00 cu.m or more
- e. Pin height Not Less than 3.40 meter
- f. Reach at ground 1.35 meter or more
- g. Reach at full height 0.7 meter or more
- h. Below ground level dig depth 0.05 meter or more
- i. Bucket Breakout force 4100 Kgf or more

(III) Static Dimensions

- a) Ground Clearance 350mm or more
- b) Slew ground clearance 500 mm or more
- c) Overall height (maximum) 3.90 meter
- d) Turning radius(Outside wheels) Not more than 6.50 meter
- e) Engine HP Not less than 70 HP at 2200 ± 100RPM
- f) Maximum Torque 275 NM or more

		<p>g) Tyres As per manufactures design (16 PR)</p> <p>h) Steering system Hydraulically operated power steering actuated through valves.</p> <p>(i) Hydraulic Pump flow Not less than 105 lpm at 2 to develop pressure not less than 200 bar</p> <p>(j) Fuel Diesel</p> <p>(k) Forward speed Minimum 30 KMPH</p> <p>(l) Fuel Tank Capacity Minimum 110 Litres or more</p> <p>(m) Temperature Range 20 degree to +55 degree</p> <p>The above product should be new unused and have designed, Manufactured & tested in accordance to latest national or international standard.</p> <p>Compatible Tools and tackles should be provided along with the equipment.</p>
45	Medical First Responder kit (25 Men)	<ul style="list-style-type: none"> • <u>Bite Sticks Materials:10 nos</u> Plastic Length: 6 inches Width: 0.5 to 0.75 inches Thickness 2-3mm at one end tapering to 05.mm at other end with Good grip Used to removes stings form epidermis of skin • <u>Blood pressure cuff with dial, Adult Type Adult;-1 Set</u> Dial type Tube length: 20-22 Cuff width: 5" – 6 Bladder inside cuff should fit in properly Material synthetic cloth with non-Velcro fixing: Hook: and durable bulb inflator. ISI market and standard calibration of 0-300 mm Hg (As per IS-7652) • <u>Cervical collar (regular):05 Nos</u> Qualitative Requirements Rigid cervical collar: extrication type Material: soft plastic rigid enough to avoid 70% of neck movement and lined inside with soft cushion Padded chin rest for application by sweep technique color coded and measure holes for easy identification and measurement of correct size Velcro for easy fixation MR/CT Scan compatible : radio lucent Tracheal access opening for advanced airway procedures Rear panel opening for cervical spine palpation Latex free and durable, (AS PER Is-11569) • <u>Cervical collar short Rigid cervical collar: 05 nos</u> Extrication type Material Soft plastic rigid enough to avoid 70% of neck movement and lined inside with soft cushion. Padded chain rest for application by sweep technique. Colour coded and measure holes for easy identification and measurement of correct size. Velcro for easy fixation. MR/CT scan compatible: radio lucent Tracheal access opening for cervical spine palpation latex free and durable This size of finished c-collar should not be less than 4.5cm when measurement as per prescribed procedure. (AS PER Is-11569) • <u>Collar stiff Neck regular Rigid cervical collar-extrication type Material:05 nos</u> Soft plastic rigid enough to avoid 70% of neck movement and lined inside with soft cushion. Padded chain rest for application by sweep technique. Colour coded and measure holes for easy identification and measurement of correct size. Velero for easy fixation. MRI/CT Scan compatible: radio lucent. Tracheal access opening for advanced airway procedure Rear panel opening for cervical spine palpation Latex free and durable This size of finished c-collar should not be less than 6cm When measurement as per prescribed procedure. (AS PER Is-11569)

- **Collar stiff neck(no neck) rigid cervical collar:05nos**

Extrication type Material: soft plastic rigid enough to avoid 70% of neck movement and lined inside with soft cushion. Padded chin rest for application by sweep technique. Colour coded and measure holes for easy identification and measurement of correct size. Velcro for easy fixation. MRI/CT Scan compatible: radio lucent. Tracheal access opening for advanced airway procedure Rear panel opening for cervical spine palpation Latex free and durable This size of finished c-collar should not be less than 3cm When measurement as per prescribed procedure. (AS PER Is-11569)

- **Collar stiff neck (paediatrics) rigid cervical collar:05 nos**

Extrication type Material: soft plastic rigid enough to avoid 70% of neck movement and lined inside with soft cushion. Padded chin rest for application by sweep technique. Colour coded and measure holes for easy identification and measurement of correct size. Velcro for easy fixation. MRI/CT Scan compatible: radio lucent. Tracheal access opening for advanced airway procedure Rear panel opening for cervical spine palpation Latex free and durable (AS PER Is-11569)

- **Collar stiff neck tall rigid cervical collar:05 nos**

Extrication type Material: soft plastic rigid enough to avoid 70% of neck movement and lined inside with soft cushion. Padded chin rest for application by sweep technique. Colour coded and measure holes for easy identification and measurement of correct size. Velcro for easy fixation. MRI/CT Scan compatible: radio lucent. Tracheal access opening for advanced airway procedure Rear panel opening for cervical spine palpation Latex free and durable This size of finished c-collar should not be less than 10cm When measurement as per prescribed procedure. (AS PER Is-11569)

- **CPR Mask(pocket Mask):07 nos**

Qualitative Requirements Face mask with one way valve and filter Used as physical barrier for mouth to mouth ventilation. Ventilation tube length 1-1-25" Pre inflated cuff for effective and good seal with transparent mask Oxygen delivery inlet Hard case for carrying mask and one Microbial wipe.

- **Dressing Abdominal:02 nos**

Qualitative Requirements

Size 7 ½" X 7 ½"

Strength: 12ply with good absorbent quilted Gauze and cotton Layer in between

Package : pre sterilized ready to use Individual packs.

- **Gauze dressing Vaseline:2 pkts**

Qualitative Requirements Non adherent dressing U.S.P. impregnated with U.S.P. white petrolatum Size: 10 X 10 cm Package: sterilized 10 pieces/pack

- **Glasses Eye Protection: 10 nos**

Qualitative Requirements UVEX – scratch resistant lens unbreakable Polycarbonate with Maximum UV protection and frosted brow guard to block overhead glare Side shields, which are adjustable. Adjustable temple length in four positions Overall shape should be so as prevent any splash Of Bodily fluid entering the eye.

- **Dressing Multi trauma: 02 nos**

Qualitative Requirements Size 12" X 3" Layers: of 16 ply of good absorbent quality gauze with cotton in between Thickness: at

least Of 5cm Package: pre-sterilized packs of 3pieces/pack ready to use.

- **Disposable Obstetrical Kit: 01 no**

Qualitative Requirements Sterilized disposable kit with the following, 1. Plastic apron -1nos 2. cap disposable -1nos 3. Face mask -1nos 4. latex gloves -1pair 5. Shoe cover -1pair 6. Plastic drapes -2nos 7. Sterile umbilical cord clamps -1nos 8. Baby towel -1nos 9. Blade towel -1nos 10. Maternity pads -2pads 11 Sterile gauze pad 10 x10cm: 12ply -4nos 12 Disposable sterile suction - 1nos Bulb(infant) 13 Sterile under pad -1nos 14 Plastic bag to hold placenta and -2nos waste 15 Twist ties for use with plastic bag -2nos

- **Penlight Medi:2 nos**

Torch to check pupil Length: 10-15cm. light weight Focus: sharp Material : durable plastic mould Operated with 2 batteries of 1.5 V:durable Provided with belt hook (press click mechanism)

- **Regulator oxygen LSP# 170-020with lightweight Oxygen cylinder; 1 nos**

Oxygen cylinder The medical Oxygen cylinder should be made of high quality & Strength of aluminium alloy with heat sensitive coating. Capacity : 425 litres It should be duly approved be the chief controller of Explosive (CCE)at Nagpur. The system should be rust proof. The refilling procedure should be risk free & simplex, with the help of portable refilling station complete with pressure gauge to show filling pressure. In built pressure gauge system to be provided with the cylinder. The medical oxygen cylinder & all other fitting should be hygienic & free from contamination. Finishing should be standard seamless aluminium with clear coat of heat sensitive powder print.

Regulator Accessories: high pressure regulator, flow mater. Connecting tube of 3 meters length, nasal cannula and non retreater mask-adult and infant size, carry pack with back harness; Compatible with length weight oxygen cylinder, Flow regulation of 0-20 l/min. Other compatible with nasal cannula /non relibrated mask Control valve should be designed to provide calibrated flow of oxygen at a pressure of 16 PSIG to 70 PSIG depending on the application. The regular must be made of anodized aluminium composite material. The pressure indicator on the valve must be protected by rubber –o-ring. The weight of the regulator should inclusive flow meter system should not exceed 310 gms. The length of the regulator should not exceed 10cm & diameter not to be more than 4 cm. Hypoallergenic surgical micro pore adhesive tape

- **Restraint patient – one part: 1 Set**

Qualitative Requirements Material: heavy duty seat belt webbing Length: 300cm Width: 5cm Locking mechanism: plastic/steel snap lock/buckles (male and female ends) Package : in sets of 4

- **Restraint patient – two parts:1 Set**

Qualitative Requirements Material: heavy duty seat belt webbing Length: 400cm Width: 5cm Locking mechanism: dual side release buckles plastic/steel snap lock/buckles (male and female ends) Package : in sets of 4

- **Scissors para medical (trauma scissors):03**

Qualitative Requirements Length 6” to 9”, width 3 mm Stainless

steel body Plastic unsheathed finger slots (As per IS – 10445)

- **Stethoscope:02 nos**

Qualitative Requirements High quality tubing of standard length Earpieces : soft pliable with one pair spare Diaphragm: with good acoustic resonance Single unit as ear pieces adjunct with conduction Tube (As per IS-3391)

- **Sponge sterile 4" x 4": 10 Pkts**

Qualitative Requirements Dimensions: 10 x 10cm. Material: 12 ply, good absorbent quality Package: packet of 4 swabs sterilized and ready to use Packs Thickness: 1 to 1.5" Operating temperature of 0oC to 50oC and water resistance as per IEC 60529/en 60529 IP 44

- **Tape dermical cloth: 05 nos**

Qualitative Requirements Dimensions: 2.5 cm x 9 meter Hypoallergenic surgical micro pore adhesive tape

- **Full kit Bag(hard):1 nos**

Qualitative Requirements Materials: thermosetting plastic; non breakable box Dimensions: 24" x 12" x 18" Locking mechanism: press lock and quick release clamps Centrally located handle with side holds also box to open from Central top as well one of the side Sliding compartments inside with at least 2 trays one 4" from top And second 5" from first.

- **Medical first Aid Dressings: 05 nos**

1" x 3" Qualitative Requirements Dimensions: 2 cm x 7 cm rectangular with center medical pad Containing Benzalkonium chloride BP 0.5% W.W Wash proof and hypoallergenic adhesive bandage sterilized single packs

- **Roller bandages 6":05 nos**

Qualitative Requirements Dimensions: 15cm x 5 meter length Gauze bandage of superior quality, cross net weaving fabricated Form cotton fiber Sterilized packs

- **Roller bandages 3":05 nos**

Qualitative Requirements Dimensions: 7cm x 5 meter length Gauze bandage of superior quality, cross net weaving fabricated form cotton fibers. Sterilized packs

- **Triangular bandage 40" x 40":20 nos**

Qualitative Requirements Dimensions: 90 x 90 x 120 cm size bandage Material: good quality calico material

- **Cup paper: 20 nos**

Qualitative Requirements Materials: disposable paper cups of Styrofoam With smooth rounded upper edge Capacity 200ml Versatile for both hot and cold liquids.

- **Tongue Depressor Disposable:10 nos**

Qualitative Requirements Soft wood of 0.5" wide and 6" length Adult size; Sterilized and packed to maintain sterilization

- **Gloves LatexMedium:50 Pairs**

- Qualitative Requirements Size: Medium Material: natural rubber latex, single use disposable" powder free Sterilized sealed packs Should meet emergency medical glove requirements of NFPA 1999 standard on protective clothing for emergency medical operations, 1997 edition.

- **Gloves Latexlarge:50 pairs**

Qualitative Requirements Material: natural rubber latex, single use

disposable" powder free Sterilized sealed packs Should meet emergency medical glove requirements of NFPA 1999 standard on protective clothing for emergency medical operations, 1997 edition.

- **Gloves Latex Extra large:50 pairs**

Qualitative Requirements Size: Extra large Material: natural rubber latex, single use disposable" powder free Sterilized sealed packs Should meet emergency medical glove requirements of NFPA 1999 standard on protective clothing for emergency medical Operations, 1997 edition.

- **Mask Oxygen- Non Re breather (Adult): 2 nos**

Qualitative Requirements Size: Extra large Material: transparent body of mask, soft plastic material with per Inflated cuff providing airtight cushion seal Package: single use, sterile packs Oxygen connecting tube: 3 meter length Mash straps attached for securing to patient and metal clip over. Nose mask: masks should also have exhale port on either Side: one exhale port to have one way valve to prevent flow of Oxygen to atmosphere.

- **Mask Oxygen – Non Re-breather (pediatric):2 nos**

Qualitative Requirements Size: Paediatric Material: transparent body of mask, soft plastic material with per Inflated cuff providing airtight cushion seal Package: single use, sterile packs Oxygen connecting tube: 3 meter length Mask straps attached for securing to patient and metal clip over. Nose mask: masks should also have exhale port on either Side: one exhale port to have one way valve to prevent flow of Oxygen to atmosphere.

- **Face mask Universal size:2 Pkts**

Qualitative Requirements Size: Adult universal size Material: Disposable, single use layer filter face mask with nose clip N95/HEPA Respirator type Should have 2 straps one to secure above ear level and other below Ear level. Package: in packets of 50-100;sterile

- **Oxygen cannula Nasal:2 nos**

Qualitative Requirements Oxygen delivery device compatible with oxygen regulator(light weight Material: soft transparent good quality plastic of 2-3mm diameter Tube length : 3 meter Nasal prongs in closed loop which is adjustable and of ultra soft, Non-irritant pliable plastic and about 5-10 mm in length. Head straps(elastic and adjustable) for securing Package: disposable sterilized individual packs Should provide safe comfortable low flow oxygen in concentration of 24-44% with 1 to 6 litre flow per minute.

- **Triage Ribbon Green:1 no**

Qualitative Requirements Material: satin and color fast Width: 2.5cm Length: 50meters

- **Triage Ribbon Red:1 no**

Qualitative Requirements Material: satin and color fast Width: 2.5cm Length: 50meters

- **Triage Ribbon Black:1 no**

Qualitative Requirements Material: satin and color fast Width: 2.5cm Length: 50meters

- **Triage Ribbon Yellow:1 no**

Qualitative Requirements Material: satin and color fast Width: 2.5cm Length: 50meters

- **Bandage Elastic 3” :**
Qualitative Requirements Material: elastocrepe bandages of good quality; fabricated from synthetic fiber and good elasticity (As per ISO-4605)
- **Bandage Elastic 6”;**05 nos
Qualitative Requirements Material: elastocrepe bandages of good quality; fabricated from synthetic fibre and good elasticity
Dimensions: 15cm x 2.7meters (As per ISO-4605)
- **Padded Board Splint Short: 5 nos**
Qualitative Requirements Material: Rigid splint of light weight material/wood; durable and Radio lucent Thickness: 1 cm Length: 35 cm Width: 7cm Padded by equal thickness foam of superior quality and enclosed By water proof, hypoallergenic, ultra thin synthetic layer.
- **Padded Board Splint: medium:5 nos**
Qualitative Requirements Material: Rigid splint of light weight material/wood; durable and Radio lucent Thickness: 1 cm Length: 90 cm Width: 7cm Padded by equal thickness foam of superior quality and enclosed By water proof, hypoallergenic, ultra thin synthetic layer
- **Padded Board Splint: Large:5 nos**
Qualitative Requirements Material: Rigid splint of light weight material/wood; durable and Radio lucent Thickness: 1 cm Length: 135 cm
- **Manikin face shield(100pcs):**1 Pkt
Qualitative Requirements Rectangular Barrier device used by rescuer when giving mouth-mouth/mouth –nose ventilation in patients Size 7”x12” outer synthetic layer and 5”x7” central rectangular sieve like filter of non absorbent white plastic; The outer layer has a central hole of 1.5” diameter in the area of the contact with patient moth/nose and rescuer mouth with intervening filter layer Package: single use disposable in sterile packing.
- **Airway Oral: 2 sets**
Qualitative Requirements Size: set of 60mm/70mm/80mm/90mm/100mm Material: good quality plastic; disposable airways Color coded for different sizes: In sets of above sizes in sterilized packs.
- **Bag valve mask Adult(disposable): 2 nos**
Qualitative Requirements Size: Adult; disposable rubber vinyl bag of 1600ml capacity Components: self inflating compressible rubber/vinyl bag of 1600ml MI capacity, one way inflation valve, face mask, oxygen reservoir Oxygen port and connecting tube Material: high quality plastic/vinyl transparent and for single use; Transparent soft pre inflated plastic face mask Good quality connecting tube of 3meter length Standardized 15/22 mm fitting Adjustable hook and loop handle Collapsible body and reservoir PEEP valves/elbows included; non jam valve with maximum Oxygen flow of 15l/minute Single use sterilized and disposable pack
- **Bag valve mask Child (Disposable):2 nos**
Qualitative Requirements Size: Child; disposable rubber vinyl bag of 500ml capacity Components: self inflating compressible rubber/vinyl bag of 500ml MI capacity, one way inflation valve,

face mask, oxygen reservoir Oxygen port and connecting tube
Material: high quality plastic/vinyl transparent and for single use;
Transparent soft pre inflated plastic face mask Good quality
connecting tube of 3meter length Standardized 15/22 mm fitting
Adjustable hook and loop handle Collapsible body and reservoir
PEEP valves/elbows included; non jam valve with maximum
Oxygen flow of 8-10 L/minute more Single use sterilized and
disposable pack

- **Flexible splints(samssplints) large/medium/s mall:**2 Sets
Material light weight, radio lucent, mouldable. Water proof and
body fluid poof Portable lightweight padded flexible splints of three
sizes and reusable, Standard and junior sets with all three sizes
Velero strapped for easy application and removal53
SPECIFICATION OF PNEUMATIC SPLINTS SET Material radio
lucent, light quality plastic. With inflation valve and closing clamp
Fixing by radio lucent zipper Set of six sizes hand and wrist half
arms full arms, foot and ankle half leg and full leg, reusable sots
with carry bag.
- **CPR Board: 2 nos**
Size- 415 mm X 70 mm X 605 mm, resistance to compression
made of high density poly ethylene double shells without seams.
The superior surface is structured to reduce slipping and to
support the vertebra. The inferior surface is made to stabilize the
board during resuscitation.
- **Extrication device: 1 no**
Size- 880 mm X 110 mm X 305 mm. weight- 2.3 kg, latex- free, X-
ray compatible, semi-rigid brace that secure the head, neck and
torso in an anatomically neutral position, rapid application in tight
sports, firm support for the victim's head, neck and spine. CPR
can be easily performed. MAST trouser can be applied without
interference; traction splint can be applied without interference
with X-rays.
- **Body Bag (Dead Body) :**10 nos
Size- 36" X 90" made with heavy gauge, black vinyl; inside vinyl
liner guarantee no leak, dual envelope size zippers. Six carrying
handle with polyethylene with nylon laminated reinforcement,
OSHA approved.
- **Kit carrying bag:**01 no
- Qualitative Requirements Material: synthetic heavy corduroy
water proof Dimensions: 20" x 15" x 15"Side pouches with
individual plastic zippers; additional compartment on top Inside
upper cover divided with multiple straps for holdings instruments,
bottles medicine kits upright Lower compartment divided into three
of 14 "and other 6" subdivided into two; Two side carry handles as
well adjustable shoulder straps; Base of bag having rubber
castors/rests to avoid direct contact with ground.
 - **Alcohol wipe:**
Cleanse and prevent infection in minor wounds, Single-use
alcohol cleansing pads, Saturated with 70% isopropyl
alcohol, Unitized refill, keep your cabinet or kit complete
with alcohol wipes., Ideal for cleaning out a minor would
when you don't have soap handy.
- Antacid Tablets: Reputed Make 2 strips
- Antibiotic ointment: reputed Make 2 nos

		<ul style="list-style-type: none"> • Antiseptic spray: reputed Make 2 nos • Analgesic Tablets: reputed make 2 strips • Calamine Location; reputed Make 2 nos (60 MI) • Eye Pad: reputed Make 2 pkts • First Aid Guide: St. John Ambulance (Odia) 2 nos • Soap Antiseptic: Reputed Make 2 nos • Sling Elbow: Reputed Make 5 nos • Sling Shoulder: Reputed Make 5 nos
46	Medical First responder Kit (50 Men)	<ul style="list-style-type: none"> • <u>Bite Sticks Materials:20 nos</u> Plastic Length: 6 inches Width: 0.5 to 0.75 inches Thickness 2-3mm at one end tapering to 05mm at other end with Good grip Used to removes stings form epidermis of skin • <u>Blood pressure cuff with dial, Adult Type Adult: 2 nos.</u> Dial type Tube length: 20-22 Cuff width: 5" – 6 Bladder inside cuff should fit in properly Material synthetic cloth with non velero fixing: Hook: and durable bulb inflator. ISI market and standard calibration of 0-300 mm Hg (AS PER Is-7652) • <u>Cervical collar (regular); 5 nos.</u> Qualitative Requirements Rigid cervical collar: extrication type Material: soft plastic rigid enough to avoid 70% of neck movement and lined inside with soft cushion Padded chin rest for application by sweep technique color coded and measure holes for easy identification and measurement of correct size Velcro for easy fixation MR/CT Scan compatible : radio lucent Tracheal access opening for advanced airway procedures Rear panel opening for cervical spine palpation Latex free and durable, (AS PER Is-11569) • <u>Cervical collar short Rigid cervical collar: 5 nos.</u> Extrication type Material: soft plastic rigid enough to avoid 70% of neck movement and lined inside with soft cushion. Padded chain rest for application by sweep technique. Colour coded and measure holes for easy identification and measurement of correct size. Velcro for easy fixation. MR/CT scan compatible: radio lucent Tracheal access opening for cervical spine palpation latex free and durable This size of finished c-collar should not be less than 4.5cm when measurement as per prescribed procedure. (AS PER Is-11569) • <u>Collar stiff Neck regular Rigid cervical collar-5nos.</u> Extrication type Material: soft plastic rigid enough to avoid 70% of neck movement and lined inside with soft cushion. Padded chain rest for application by sweep technique. Colour coded and measure holes for easy identification and measurement of correct size. Velero for easy fixation. MRI/CT Scan compatible: radio lucent. Tracheal access opening for advanced airway procedure Rear panel opening for cervical spine palpation Latex free and durable This size of finished c-collar should not be less than 6cm When measurement as per prescribed procedure. (AS PER Is-11569) • <u>Collar stiff neck(No neck) Rigid cervical Collar:5nos.</u> Extrication type Material: soft plastic rigid enough to avoid 70% of neck movement and lined inside with soft cushion. Padded chain rest for application by sweep technique. Colour coded and measure holes for easy identification and measurement of correct size. Velero for easy fixation. MRI/CT Scan compatible: radio

lucent. Tracheal access opening for advanced airway procedure
Rear panel opening for cervical spine palpation Latex free and durable This size of finished c-collar should not be less than 3cm When measurement as per prescribed procedure. (AS PER Is-11569)

- **Collar stiff neck (paediatrics) Rigid cervical Collar:5 nos.**

Extrication type Material: soft plastic rigid enough to avoid 70% of neck movement and lined inside with soft cushion. Padded chain rest for application by sweep technique. Colour coded and measure holes for easy identification and measurement of correct size. Velcro for easy fixation. MRI/CT Scan compatible: radio lucent. Tracheal access opening for advanced airway procedure Rear panel opening for cervical spine palpation Latex free and durable (AS PER IS-11569)

- **Collar stiff neck tall Rigid cervical Collar:5nos.**

Extrication type Material: soft plastic rigid enough to avoid 70% of neck movement and lined inside with soft cushion. Padded chain rest for application by sweep technique. Colour coded and measure holes for easy identification and measurement of correct size. Velcro for easy fixation. MRI/CT Scan compatible: radio lucent. Tracheal access opening for advanced airway procedure Rear panel opening for cervical spine palpation Latex free and durable This size of finished c-collar should not be less than 10cm When measurement as per prescribed procedure. (AS PER Is-11569)

- **CPR Mask(pocket Mask):7nos.**

Qualitative Requirements Face mask with one way valve and filter Used as physical barrier for mouth to mouth ventilation. Ventilation tube length 1-1-25" Pre inflated cuff for effective and good seal with transparent mask Oxygen delivery inlet Hard case for carrying mask and one Microbial wipe.

- **Dressing Abdominal:4nos.**

Qualitative Requirements Size 7 ½" X 7 ½" Strength: 12ply with good absorbent quality Gauze and cotton Layer in between Package : pre sterilized ready to use Individual packs.

- **Gauze dressing Vaseline:4Pkts.**

Qualitative Requirements Non adherent dressing U.S.P. impregnated with U.S.P. white petrolatum Size: 10 X 10 cm Package: sterilized 10 pieces/pack

- **Glasses Eye Protection:** 10nos.

Qualitative Requirements UVEX – scratch resistant lens unbreakable Polycarbonate with Maximum UV protection and frosted brow guard to block overhead glare Side shields, which are adjustable. Adjustable temple length in four positions Overall shape should be so as prevent any splash Of Bodily fluid entering the eye.

- **Dressing Multi trauma :4nos.**

Qualitative Requirements Size 12" X 3" Layers: of 16 ply of good absorbent quality gauze with cotton in between Thickness: at least Of 5cm Package: pre sterilized packs of 3pieces/pack ready to use.

- **Disposable Obstetrical Kit:2nos.**

Qualitative Requirements Sterilized disposable kit with the following, 1. Plastic apron -1nos 2. cap disposable -1nos 3. Face mask -1nos 4. latex gloves -1pair 5. Shoe cover -1pair 6. Plastic

drapes -2nos 7. Sterile umbilical cord clamps -1nos 8. Baby towel -1nos 9. Blade towel -1nos 10. Maternity pads -2pads 11 Sterile gauze pad 10 x10cm: 12ply -4nos 12 Disposable sterile suction - 1nos Bulb(infant) 13 Sterile under pad -1nos 14 Plastic bag to hold placenta and -2nos waste 15 Twist ties for use with plastic bag -2nos

- **Penlight Medi:4nos.**

Torch to check pupil Length: 10-15cm. light weight Focus: sharp Material : durable plastic mould Operated with 2 batteries of 1.5 V:durable Provided with belt hook (press click mechanism)

- **Regulator oxygen LSP:1nos.**

170-020with lightweight Oxygen cylinder Oxygen cylinder The medical Oxygen cylinder should be made of high quality & Strength of aluminium alloy with heat sensitive coating. Capacity: 425 litres It should be duly approved by the chief controller of Explosive (CCE)at Nagpur. The system should be rust proof. The refilling procedure should be risk free & simplex, with the help of portable refilling station complete with pressure gauge to show filling pressure. In built pressure gauge system to be provided with the cylinder. The medical oxygen cylinder & all other fitting should be hygienic & free from contamination. Finishing should be standard seamless aluminium with clear coat of heat sensitive powder print.

Regulator Accessories: high pressure regulator, flow mater. Connecting tube of 3 meters length, nasal cannula and non retractor mask-adult and infant size, carry pack with back harness; Compatible with length weight oxygen cylinder, Flow regulation of 0-20 l/min. Other compatible with nasal cannula /non retractor mask Control valve should be designed to provide calibrated flow of oxygen at a pressure of 16 PSIG to 70 PSIG depending on the application. The regular must be made of anodized aluminium composite material. The pressure indicator on the valve must be protected by rubber -o-ring. The weight of the regulator should inclusive flow meter system should not exceed 310 gms. The length of the regulator should not exceed 10cm & diameter not to be more than 4 cm. Hypoallergenic surgical micro pore adhesive tape

- **Restraint patient – one part:2stes**

Qualitative Requirements Material: heavy duty seat belt webbing Length: 300cm Width: 5cm Locking mechanism: plastic/steel snap lock/buckles (male and female ends) Package : in sets of 4

- **Restraint patient – two parts:2sets**

Qualitative Requirements Material: heavy duty seat belt webbing Length: 400cm Width: 5cm Locking mechanism: dual side release buckles plastic/steel snap lock/buckles (male and female ends) Package : in sets of 4

- **Scissors para medical (trauma scissors) 03**

Qualitative Requirements Length 6” to 9”, width 3 mm Stainless steel body Plastic unsheathed finger slots (As per IS – 10445)

- **Stethoscope:4nos**

Qualitative Requirements High quality tubing of standard length Earpieces : soft pliable with one pair spare Diaphragm: with good acoustic resonance Single unit as ear pieces adjunct with conduction Tube (As per IS-3391)

- **Sponge sterile 4” x 4” : 15Pkts**

Qualitative Requirements Dimensions: 10 x 10cm. Material: 12 ply, good absorbent quality Package: packet of 4 swabs sterilized and ready to use Packs Thickness: 1 to 1.5" Operating temperature of 0oC to 50oC and water resistance as per IEC 60529/en 60529 IP 44

- **Tape dermical cloth:2nos.**

Qualitative Requirements Dimensions: 2.5 cm x 9 meter Hypoallergenic surgical micro pore adhesive tape

- **Full kit Bag(hard):2nos**

Qualitative Requirements Materials: thermosetting plastic; non breakable box Dimensions: 24" x 12" x 18" Locking mechanism: press lock and quick release clamps Centrally located handle with side holds also box to open from Central top as well one of the side Sliding compartments inside with at least 2 trays one 4" from top And second 5" from first.

- **Medical first Aid Dressings:**10nos

1" x 3" Qualitative Requirements Dimensions: 2 cm x 7 cm rectangular with center medical pad Containing Benzalkonium chloride BP 0.5% W.W Wash proof and hypoallergenic adhesive bandage sterilized single packs

- **Roller bandages 6" :10nos.**

Qualitative Requirements Dimensions: 15cm x 5 meter length Gauze bandage of superior quality, cross net weaving fabricated Form cotton fiber Sterilized packs

- **Roller bandages 3":10nos.**

Qualitative Requirements Dimensions: 7cm x 5 meter length Gauze bandage of superior quality, cross net weaving fabricated form cotton fibres. Sterilized packs

- **Triangular bandage 40" x 40":40nos.**

Qualitative Requirements Dimensions: 90 x 90 x 120 cm size bandage Material: good quality calico material

- **Cup paper:20nos.**

Qualitative Requirements Materials: disposable paper cups of Styrofoam With smooth rounded upper edge Capacity 200ml Versatile for both hot and cold liquids.

- **Tongue Depressor Disposable:10nos.**

Qualitative Requirements Soft wood of 0.5" wide and 6" length Adult size; Sterilized and packed to maintain sterilization

- **Gloves Latex Medium:50nos.**

Qualitative Requirements Size: Medium Material: natural rubber latex, single use disposable" powder free Sterilized sealed packs Should meet emergency medical glove requirements of NFPA 1999 standard on protective clothing for emergency medical operations, 1997 edition.

- **Gloves Latex large:50nos.**

Qualitative Requirements Material: natural rubber latex, single use disposable" powder free Sterilized sealed packs Should meet emergency medical glove requirements of NFPA 1999 standard on protective clothing for emergency medical operations, 1997 edition.

- **Gloves Latex Extra Large:50nos.**

Qualitative Requirements Size: Extra large Material: natural rubber latex, single use disposable" powder free Sterilized sealed packs Should meet emergency medical glove requirements of NFPA 1999 standard on protective clothing for emergency medical Operations, 1997 edition.

- **Mask Oxygen- Non Re breather (Adult):2nos.**

Qualitative Requirements Size: Extra large Material: transparent body of mask, soft plastic material with per Inflated cuff providing airtight cushion seal Package: single use, sterile packs Oxygen connecting tube: 3 meter length Mash straps attached for securing to patient and metal clip over. Nose mask: masks should also have exhale port on either Side: one exhale port to have one way valve to prevent flow of Oxygen to atmosphere.

- **Mask Oxygen – Non Re-breather (paediatric):2nos.**

Qualitative Requirements Size: Paediatric Material: transparent body of mask, soft plastic material with per Inflated cuff providing airtight cushion seal Package: single use, sterile packs Oxygen connecting tube: 3 meter length Mask straps attached for securing to patient and metal clip over. Nose mask: masks should also have exhale port on either Side: one exhale port to have one way valve to prevent flow of Oxygen to atmosphere.

- **Face mask Universal size:4Pkts**

Qualitative Requirements Size: Adult universal size Material: Disposable, single use layer filter face mask with nose clip N95/HEPA Respirator type Should have 2 straps one to secure above ear level and other below Ear level. Package: in packets of 50-100;sterile

- **Oxygen cannula Nasal:2nos.**

Qualitative Requirements Oxygen delivery device compatible with oxygen regulator(light weight Material: soft transparent good quality plastic of 2-3mm diameter Tube length : 3 meter Nasal prongs in closed loop which is adjustable and of ultra soft, Non-irritant pliable plastic and about 5-10 mm in length Head straps(elastic and adjustable) for securing Package: disposable sterilized individual packs Should provide safe comfortable low flow oxygen in concentration of 24-44% with 1 to 6 litre flow per minute.

- **Triage Ribbon Green:2nos.**

Qualitative Requirements Material: satin and color fast Width: 2.5cm Length: 50meters

- **Triage Ribbon Red:2nos**

Qualitative Requirements Material: satin and color fast Width: 2.5cm Length: 50meters

- **Triage Ribbon Black:2nos.**

Qualitative Requirements Material: satin and color fast Width: 2.5cm Length: 50meters

- **Triage Ribbon Yellow:2nos**

Qualitative Requirements Material: satin and color fast Width: 2.5cm Length: 50meters

- **Bandage Elastic 3'':05nos.**

Qualitative Requirements Material: elasto crepe bandages of good quality; fabricated from synthetic fibre and good elasticity (As per ISO-4605)

- **Bandage Elastic 6'':05nos.**

Qualitative Requirements Material: elasto crepe bandages of good quality; fabricated from synthetic fibre and good elasticity
Dimensions: 15cm x 2.7meters (As per ISO-4605)

- **Padded Board Splint Short :05nos.**

Qualitative Requirements Material: Rigid splint of light weight material/wood; durable and Radio lucent Thickness: 1 cm Length: 35 cm Width: 7cm Padded by equal thickness foam of superior quality and enclosed By water proof, hypoallergenic, ultra thin synthetic layer.

- **Padded Board Splint Medium:5nos.**

Qualitative Requirements Material: Rigid splint of light weight material/wood; durable and Radio lucent Thickness: 1 cm Length: 90 cm Width: 7cm Padded by equal thickness foam of superior quality and enclosed By water proof, hypoallergenic, ultra thin synthetic layer

- **Padded Board Splint Large :5nos.**

Qualitative Requirements Material: Rigid splint of light weight material/wood; durable and Radio lucent Thickness: 1 cm Length: 135 cm

- **Manikmin face shield(100pcs): 2Pkts**

Qualitative Requirements Rectangular Barrier device used by rescuer when giving mouth-mouth/mouth –nose ventilation in patients Size 7"x12" outer synthetic layer and 5"x7" central rectangular sieve like filter of non absorbent white plastic; The outer layer has a central hole of 1.5" diameter in the area of the contact with patient moth/nose and rescuer mouth with intervening filter layer Package: single use disposable in sterile packing.

- **Airway Oral:2sets**

Qualitative Requirements Size: set of 60mm/70mm/80mm/90mm/100mm Material: good quality plastic; disposable airways Color coded for different sizes: In sets of above sizes in sterilized packs.

- **Bag valve mask Adult(disposable): 2nos.**

Qualitative Requirements Size: Adult; disposable rubber vinyl bag of 1600ml capacity Components: self inflating compressible rubber/vinyl bag of 1600ml MI capacity, one way inflation valve, face mask, oxygen reservoir Oxygen port and connecting tube Material: high quality plastic/vinyl transparent and for single use; Transparent soft pre inflated plastic face mask Good quality connecting tube of 3meter length Standardized 15/22 mm fitting Adjustable hook and loop handle Collapsible body and reservoir PEEP valves/elbows included; non jam valve with maximum Oxygen flow of 15l/minute Single use sterilized and disposable pack

- **Bag valve mask Child (Disposable):2nos.**

Qualitative Requirements Size: Child; disposable rubber vinyl bag of 500ml capacity Components: self inflating compressible rubber/vinyl bag of 500ml MI capacity, one way inflation valve, face mask, oxygen reservoir Oxygen port and connecting tube Material: high quality plastic/vinyl transparent and for single use; Transparent soft pre inflated plastic face mask Good quality connecting tube of 3meter length Standardized 15/22 mm fitting Adjustable hook and loop handle Collapsible body and reservoir PEEP valves/elbows included; non jam valve with maximum Oxygen flow of 8-10 L/minute more Single use sterilized and

disposable pack

- **specification of flexible splints (samssplints) large/medium/small: 2sets**

Material light weight, radio lucent, mouldable. Water proof and body fluid poof Portable lightweight padded flexible splints of three sizes and reusable, Standard and junior sets with all three sizes Velero strapped for easy application and removal
53 SPECIFICATION OF PNEUMATIC SPLINTS SET Material radio lucent, light quality plastic. With inflation valve and closing clamp Fixing by radio lucent zipper Set of six sizes hand and wrist half arms full arms, foot and ankle half leg and full leg, reusable sots with carry bag.

- **Specification of portable Delibrillator with recorder:1nos.**

Dimension: 205.5cm (l) x 25.8m(w) x 6cm(D) Weight : 1.9kg including battery and 2 pairs of electrodes. defibrillate: a) Biphasic escalating waveform in SCOPE b) Pre configured automated protocol of 100 j, 150 j, and 200j. c) Manual override : 100 j, 150 j, 200 j, and 230 j, d) Charge time: 100j in less than 6sec, 200 j, in less than 10 sec with new non re-chargeable battery pack. e) Shock cycle time of less than 60 seconds three analyze/shock cycle. f) Controls for on/off, shocks manual override, display contrast and backlight LCD g) Disposable defibrillation electrodes of active gel area 0, 120 sq cm cable length of 100 cm, shelf life of 2 years, 1 pairs/packet in specified quantities. Patient Analysis system for requirement of defibrillation based on ECG analysis with sensitivity /specificity meeting AAMI DF 39 requirement; also included intelligent Battery backed memory data recorder with incmory capacity of 12 hours of ECG. Display type: High resolution, LCD Switch able backlight. Display Area: 100mm (w) x 75.5mm(H)

- **Infantry pack (cpr manikin)- 5 Infant mannequin set:2sets**

For CPR training with provision of manoeuvring airway opening skills, air ventilation and chest compression. It should be made up of good quality of rubber and plastic. It composed of three parts. MAIN BODY It is made up of rubber and is without head with provision to attach head in the neck. It should clearly landmark with hand and feet having grooves over upper torso to fix chest part. Length from neck to toe- 48 to 55cms Length of the neck – 08 to 12cms HEAD It should be made of good quality of plastic fixed with neck. With a facility for extension of head 1-1.5 cm for inserting lung bag, through mouth. Mandible or lower jaw should be movable; Eye ear nose should be well land marked. CHEST It should be made of good quality of rubber It should be compressed by 1-1.5 cm It should be such that it can be adjusted over the grooves of the main body. LUNGS BAGS Pendulum in shape, made up of polythene. Length : 29-32cm MOUTH: Rectangle in shape with two flaps that can be fixed over the mouth to prevent air entry form out side Length : 11-12cms Width : 4-7cms The mouth will lead in to wind pipe WINDPIPE Spherical in shape when inflated. Length: 15-17cm Circumference: 6 to 7cm LUNG INSERTER Made up of plastic for inserting lung bag in place. Length: 30-35cm Width: 2-2.5cm

- **Adult Manikin set for CPR training:2sets**

With provision of manoeuvring airway opening skills, air ventilation and chest compression. It should be made up of good quality of rubber and plastic. It should be composed of 05 parts. Length of the mannequin: 50-70cms Width of the chest: 30-40cms The mannequin

should be in 5 parts:-

1. **HEAD** Head should be made up of a good plastic quality. Size Length: 19-25cms Width: 12-15cms It should be screwed with the neck with a facility for extension. Mouth should be opened by 2.5 cm to 4 cm for inserting lung bag If possible mandible or lower jaw should be movable. Nose should be made up of such material that can be pinched. Eye ear should be well impressed.
2. **MAIN BODY (BACK)** It is the posterior portion of the body to which head and chest portion is fixed. Should be made up of good quality of plastic with a circular hole in the center of the torso to place the piston. At the end of the neck there should be a provision to screw the head. There should a provision to attach chest part over the upper portion of back. Length of the back + 48-68cms. Width: 28-40cms Length of the neck: 16cms – 18cms.
- CHEST** Should be made of good quality of rubber Can be compressed by 4-7cms Clavicle, xiphoid process, sternum, navel and ribs should be with proper landmarks. Left right chest should be well impressed. There should be cleft in the center of the chest so that airway system (lung) can be inserted. Length of the chest 30-45cms, width 28-38cms
4. **PISTON** Should be made up good quality of sponge. Should properly fit over the hole of the back Dia of the piston 12 to 15cms (Subject to fit over the hole on the back) Height of the piston: 7-10cms
5. **LUNG BAG:** Should be made up of good quality of polyethylene. It will be in three parts

MOUTH Rectangle in shape in shape with two flaps that be fixed over the mouth to prevent air entry from out sides Size: Length ; 12 – 13cms Width : 4-7cms The mouth leads into windpipe. Windpipe: Should be spherical in shape when inflated. Circumference; 10-12cms

LUNG: Spherical in shape when inflated. Radius; 6-7cm

6. **INSERTER** A flat plastic strip for inserting lung bag through of the mannequin into cleft of the chest. Length: 48 - 52cms Width: 3 – 4cms

- **OB MANIKIN It is used to import training of normal delivery and childbirth complications.1sets**

It should have a model of female abdomen with abdomen layer as a non transparent flap, which should have an arrangement to attach with the remaining portion of the model by press button. Consists of 07 parts:-

1. **MAIN BODY** Should be made up of rubber showing the landmark of lumber, sacrum spine pubic symphysis, pelvic girdle, with oval shaped perineum opening with a dia of 13- 15cms Both the thigh should be upward raised from abdomen to perineum. Length of the main body – 35 -40cms Depth of the main body showing abdomen 10 to 12cms
2. **ABDOMEN LAYER** It should be meant to cover the hollow abdominal space of the main body It should be made up of non-transparent rubber flap, which should have an arrangement to attach with the main body with press button. It must have the provision for the cavity so that uterus and foetus can be placed in abdominal layer to simulate the pregnancy.

UTERUS: It should be a hollow plastic bag containing a foetus shaped baby made up of rubber. It should be a shape that it could be placed inside the abdominal layer to look like a pregnant lady. There should be preservative inside the uterus.

4. **INFANT** It will be used to show simulated delivery. It should be hollow. Made up of rubber with a facility for filling air with an air valve attach with foot. A provision to attach umbilical cord over navel point. A separate manual air-filling pump should be provide to fill air in the infant Length of the infant – 50 to 60cm.
5. **UMBILICAL** It should be made up of flexible plastic tube. Length of the tube: 65 to 75cms dia of the tube: 2 to 2.5cms It should contain a facility to attach with the navel of the infant at one

end and to attach with placenta at the other end.

PLACENTA: A disc shaped placenta should be made up of good quality of rubber Having its colour and impression with a provision to attach the umbilical cord with it. 7. **PERINEUM FLAP** It should be made up rubber for covering perineum opening with a facility to attach and detach with perineum. perineum should have an cut (Vaginal Opening) so that could show the impression of vaginal opening.

- **CPR Board:2nos**

Size- 415 mm X 70 mm X 605 mm, resistance to compression made of high density poly ethylene double shells without seams. The superior surface is structured to reduce slipping and to support the vertebra. The inferior surface is made to stabilize the board during resuscitation.

- **Extrication device:1nos**

Size- 880 mm X 110 mm X 305 mm. weight- 2.3 kg, latex- free, X-ray compatible, semi-rigid brace that secure the head, neck and torso in an anatomically neutral position, rapid application in tight sports, firm support for the victim's head, neck and spine. CPR can be easily performed. MAST trouser can be applied without interference; traction splint can be applied without interference with X-rays.

- **Body Bag (Dead Body) :20nos**

Size- 36" X 90" made with heavy gauge, black vinyl; inside vinyl liner guarantee no leak, dual envelope size zippers. Six carrying handle with polyethylene with nylon laminated reinforcement, OSHA approved.

- **Kit carrying bag:2nos**

Qualitative Requirements Material: synthetic heavy corduroy water proof Dimensions: 20" x 15" x 15" Side pouches with individual plastic zippers; additional compartment on top Inside upper cover divided with multiple straps for holdings instruments, bottles medicine kits upright Lower compartment divided into three of 14 "and other 6" subdivided into two; Two side carry handles as well adjustable shoulder straps; Base of bag having rubber castors/rests to avoid direct contact with ground.

- **Burn Kit:2sets**

Comprising of universal scissors-1, latex gloves- 1 pair, burn dressing (45 cm X 40 cm)- 2 set, burn spray, gauge pad complete with box of 280 mm X 80 mm X 220 mm.

- **Alcohol wipe:40nos.**

Cleanse and prevent infection in minor wounds, Single-use alcohol cleansing pads, Saturated with 70% isopropyl alcohol, Unitized refill, keep your cabinet or kit complete with alcohol wipes., Ideal for cleaning out a minor would when you don't have soap handy.

- **Antacid Tablets: Reputed Make**

- **Antibiotic ointment: reputed Make**

- **Antiseptic spray: reputed Make**

- **Analgesic Tablets: reputed make**

- **Calamine Location; reputed Make**

- **Eye Pad: reputed Make**

- **First Aid Guide: St. John Ambulance (Odia)**

- **Soap Antiseptic: Reputed Make**

- **Sling Elbow: Reputed Make**

		<ul style="list-style-type: none"> • <u>Sling Shoulder: Reputed Make</u>
47	Folding Standard Stretcher	<ul style="list-style-type: none"> • Fixed type foldable (width wise fold) stretcher without wheels. • Foldable stretcher with two light weight poles with handgrips. • Open size: approximately 205cm L x 53cm W x 13cm H. • Folded size; 102 cm L x 17 cm x 8 cm • Poles: Two lightweight carrying poles made of non-ferrous metal like heavy duty aluminium Alloy. These to be hollow tube poles with proper non-slip shaped handgrips. • Stretcher material: Durable vinyl coated nylon cover strain resistance and does not absorb blood or body fluid. • Should have ground clearance of 10cm. • Should be provided with two inbuilt nylon straps with buckle. • Carry capacity of minimum 150kg. • The material shall be turnover edged and then double stitched in nylon thread on all edges.
48	Spine Board Long with Strap	<ul style="list-style-type: none"> • The spinal board is a device for recovery, immobilization, and transfer to the stretcher of patient with suspected spinal injuries. The number of handles, their positioning and their shape, allow a firm grip even in difficult conditions. The tapered shape allows to save space and to place the device inside basket stretchers. Dedicated holes and pins to fix belts and head immobilizers Smooth and filleted surfaces to allow easy cleaning Robust and lightweight structure to ensure impact resistance <ul style="list-style-type: none"> • Dimensions: 1840x445x50 ± 10 mm • Materials : PE, PU • Number of handles: 16 • No pins: 14 • Loading capacity: 200 kg • Weight: 6.5 ± 0.5 kg • PIN STRAPS- SYSTEM OF BELTS WITH HOOKS • straps system for spinal boards • head immobilizer
49	Spine Board Short with Strap	<ul style="list-style-type: none"> • Restraint patient- one part • Material- heavy duty seat belt webbing • Length- 300 cm • Width- 5 cm • Locking mechanism- plastic/ steel snap lock/ buckets (male & female ends) • Package- in sets of 4 • Restraint patient- two part • Material- heavy duty seat belt webbing • Length- 450 cm • Width- 5 cm • Locking mechanism- dual side release buckles plastic/ steel snap lock/ buckets (male & female ends)
50	Blanket	<p>Woollen blanket manufactured by reputed mills with not less than 60% of wool contents and not more than 40% of acrylic/ polyester content of size not less than 7.5 ft x 4.5 ft. Weight more than 2 kg with 1.5” lining (satin boarder) stitched in four sides of the blanket and “OSDMA” shall be printed on the satin border of the blanket.</p>

51	Computer & Multifunctional Printer	<p>Desktop PC of reputed make like DELL/HP/ equivalent CPU & monitor of latest model with the following configuration:</p> <p><u>PROCESSOR & OPERATING SYSTEM</u> Processor: 3 GHz, 7th Generation Intel Core i5 processor Operating system: Windows 10 Home 64 Application Software: Latest version of Genuine MS Office, PDF viewer</p> <p><u>MULTIMEDIA AND INPUT/OUTPUT DEVICES</u> Keyboard: USB Wired QWERTY black Keyboard with volume control Monitor: Minimum 20" LED display Graphics: Integrated Intel HD Graphics 630 Pointing device: USB Wired Optical Mouse</p> <p><u>CONNECTIVITY AND COMMUNICATIONS</u> Video connectors: 1 VGA; 1 HDMI 1.4 Network interface: Integrated 10/100/1000 GbE LAN Wireless: 802.11b/g/n (1x1) and Bluetooth 4.0 combo</p> <p><u>MEMORY</u> Memory, standard: 8 GB DDR4-2400 SDRAM (1 x 8GB) Memory slots: 2 DIMM</p> <p><u>DRIVES</u> Optical drive: Try load DVD Drive (R/W to DVD/CD) Hard drive: Minimum 1 TB 7200 rpm SATA HDD</p> <p><u>MULTI FUNCTIONAL PRINTER:</u></p> <ul style="list-style-type: none"> • A4, 27 PPM, print & copy, Mono print scan Copy, with ADF. • Resolution of 600x600 dpi, up to 1200x1200 dpi 15000 pages DC • UFR II, PCL6, 512 MB RAM, 10/100 Ethernet, send & duplex. • FPOT of 06 sec • Scan resolution of 600x600 dpi up to 9600x9600 dpi • CIS scanner push and pull scan. <p>Accessories: Reputed make like APC/ Microtek or equivalent UPS compatible with desktop PC, MFP and scanner, 1phase, 230V, 50Hz, pure sine wave, with a minimum back up duration of 1hr 30 minutes.</p>
52	Hand held megaphone	<p>Hand held megaphone of 16 watts RMS (20W Max), dry cell & 12 V car battery operation, built in SIREN with ON/OFF Switch.</p> <p>A. Power output: 16 Watt rated, 20-watt maximum. B. Voice range: 0.40 km(1 Km in quite area) C. Power Source:12-Volt DC, 8*UM-2 Cells D. Microphone: Unidirectional, with volume control and press to Talk switch. E. Dimension: Horn diameter 220mm, Length 370 mm F. Weight: 2 kg approx. G. Operation: Dry cell and car battery operation H. Body: Sturdy and light weight with shoulder slung with 12V dry cell battery with connecting cable and accessories</p>
53	Camera with Recording	<p><u>Thermal Imaging Camera:</u></p>

Provision	<p>It should be capable of viewing object and persons in total darkness or more smoke filled conditions. It should also have integrated temperature measurement with digital display. The thermal imaging camera should be NFPA 1801 complaint and have following specifications:</p> <ul style="list-style-type: none"> • Ir resolution 384 x 288pixels • Thermal sensitivity < 50mK • Field of view (FOV): 54deg Diagonal • Minimum focus distance – 0.4m (1.31 ft) 1m • Focus – Automatic Intelligent Focus • Detector Refresh Rate: 30 Hz or higher. • Image optimization: Automatic. • IR protection Window : Germanium • Digital zoom – 2x & 4x OK • Detector type – ASi Un cooled micro bolometer • Spectral range –8 – 14 μm • Display –3.5 in. LCD, o384 x 288 pixels • Image Optimization– automatic • DTM range -20 Deg C to + 120 Deg C (-4 Deg F to + 248 Deg F) & 0 Deg C to + 650 Deg C (+32 Deg F to + a202 Deg F)– 40 Deg C to 1000 Deg C • DTM Accuracy:+/- 5°C @ <100°C, +/- 10% @ >100°C • Start up Time :< 10 sec • Colorization: Transparent Colorization. • Laser Pointer : Class III • Dynamic Temperature Measurement :Hot & Cold Spot Tracker • Battery Type- rechargeable Li-ion battery, 2 nos to be supplied. • Battery Operation time - > 3.5 Hours • Charging time – < 2.5 Hours • Battery Recharge Cycle : 1000 + • Operating Temperature range- 35Deg C to 450 Deg C • Shock Resistant –Impact Test at 2m (6.6 ft.) • Water Resistant : IP67, submerged at 1m for 30 minutes • Approvals : NFPA 1801 <p><u>HD Video Camera</u></p> <ul style="list-style-type: none"> • Item Weight: 626 g • Product Dimensions: 13 x 12.2 x 9.5 cm • Batteries: 1 Lithium ion batteries required. • Flash Memory Type: SD/SDHC/SDXC/Memory Stick PRO Duo/Pro-HG Duo • Memory Technology: sdhc • Included Flash Type: Built-In Flash • Removable Memory: Secure Digital card • Hardware Interface: AV • Additional Features: image-stabilization • Accessories: Lithium Ion Battery, AC Adaptor AC-UB10C,Multi USB Cable, Strap, Lens Cap, Instruction Manual • Screen Size: 3 Inches
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		<ul style="list-style-type: none"> • Display Type: LCD • Colour Screen: Yes • Image Aspect Ratio: 4:3, 16:9 • Image Stabilization: Optical • Supported Image Type: JPEG • Has Image Stabilization: Yes • Optical Zoom: 63 X • Digital Zoom: 63.0 • Display Resolution Maximum: 460000 • Resolution: 20.0 Megapixels (Minimum) • Optical Sensor Resolution: 20.0 Megapixels (Minimum) • Min. Vertical Resolution: 3864 Pixels • Max Shutter Speed: 1/2000 Seconds • Min Shutter Speed: 30 seconds • Min Aperture: 6.50 f_stop • Min Focal Length: 25 Millimetres • Microphone Technology: Mono • Video Capture Resolution: 1280 x 720 (30fps) • Video Input: 1080p • Battery Average Life: 300 Hours • Batteries Included: No • Batteries Required: Yes • Battery Cell Composition: Lithium Ion • Continuous Shooting Speed: 0.71 • Total Usb Ports: 1 • Form Factor: SLR-like (bridge) • Device Type: Digital Camera • Flash Modes Description: auto, fill, red eye reduction • Lens Type: zoom • Metering Description: Multi, Center-weighted, Spot • Viewfinder Type: digital • Includes Rechargeable Battery: No • Has Self Timer: Yes • Includes AC Adapter: No • Includes Remote: No • Includes External Memory: No <p>± 1% tolerance of the above specification is acceptable.</p>
54	Global Positioning System (GPS)	Way Points: To create, store, editing and finding More than 3000 points Tracking Log: Minimum 10,000 points, 200 saved tracks Routes: 200 or higher Area Calculation: Facility should be there Memory: Minimum internal 3 GB and external memory card Display Type: Transflective color TFT Touch screen Battery life: Minimum 16 hours Waterproof: standard Satellite tracking: GPS and GLONASS

		<p>Accuracy: 2 to 3 Meter</p> <p>Camera and photo: to take photograph, viewing and managing</p> <p>Interface: USB</p> <p>Accessories: Compatible Charger, USB cable etc.</p>
55	Mobile Phone	<p>4G VOLTE enabled dual SIM smart phone of reputed make Nokia/Samsung/LG/Motorola/ or equivalent.</p> <p>Connectivity: GSM, 3G, WCDMA, 4G VOLTE.</p> <p>13MP or higher primary camera with recording @30fps, f1.7 flash, auto focus and 8MP or higher front facing camera</p> <p>Minimum 12.19cms (4.8.inch) Full HD (1080 x 1920) capacitive touch screen with Gorilla Glass protection.</p> <p>Android v7 Nougat or higher version operating system with 2.0GHz Snapdragon 625 octa-core processor, 4GB RAM (minimum), 64GB internal memory expandable up to 256GB and dual SIM dual-standby (4G+4G)</p> <p>3300mAH or higher capacity lithium-ion battery.</p> <p>Accessories: Charging Adapter, Earphone, etc.</p>
56	Landline Phone	<ul style="list-style-type: none"> • FSK/DTMF compatible with auto-detection, Redial function & Pause Function. • 16-digit LCD display with Green back light, Anti- Steal dialing function • 99 Nos. Incoming Call Memory, 18 Nos Outgoing Call Memory, 6 One-Touch Memories. • 5 kinds of Normal Ringing Tone for Selection, Intercom and Parallel Call Transfer Function • Two ways Speakerphone with 3 levels Volume Control, 5 level Ringing volume selection • 3 nos. AA batteries
57	FAX Machine	<ul style="list-style-type: none"> • Walk-up black and white or color fax capability. • Up to 100 speed dials. • Up to 200-page memory • Manual fax send and receive. • Automatic busy redial up to five times. • Automatic no-answer redial one time. • Confirmation and activity reports. • CCITT/ITU Group 3 fax with Error Correction Mode (ECM). • Minimum 33.6 Kbps transmission speed. • Ring detect with automatic fax/answering machine switching.
58	Air Compressor with Tyre Inflator	<p>Type : Reciprocating, 2 Stage, 2 Cylinder, Air Cooled Compressor</p> <p>Prime Mover : Electric Motor, 7.5 HP, 3 Phase, 415 V, 50 Hz</p> <p>Piston Displacement : 700 lpm</p> <p>Free Air Delivery : 580 lpm</p> <p>Maximum Pressure : 175 PSI</p> <p>Type of Mounting : Tank Mounted</p> <p>Tank Capacity : 220 Lts</p> <p>Accessories:</p> <ol style="list-style-type: none"> 1. Foundation Bolts 2. Interconnect Pipelines (GI) and Accessories of suitable Size 3. Ball Valve (2 Nos)

		<p>4. 10 Meter Air Hose with Foot Connector</p> <p>5. MCB for Air Compressor & Tyre Inflator</p> <p>6. Compressor Oil</p>
59	Reciprocating Pump cum Vehicle Washer	<p>Discharge : 17.5 lpm</p> <p>No. Of Washing Guns : 1</p> <p>Operating Pressure : 45 Kg/cm²</p> <p>Motor Rating : 3 HP, 3phase, 415V, 50Hz</p> <p>Pump Speed : 340 RPM</p> <p>Mounting : Base</p> <p>Length of Hose pipe: 10 mtr</p>
60	Battery Charger	<p>Good quality battery charger is required to charge different size of Batteries used in the appliances. The charger shall be portable and easy to carry with following specification.</p> <p>INPUT - 210V-230V A.C supply</p> <p>OUTPUT - 6V-36 Volt DC</p> <p>CAPACITY - 30 AMP make in all step</p> <p>CONTROL - Voltage Selector Switch-6 step (6 Volt, 12 Volt, 18 Volt,24 Volt, 30 Volt and 36 Volt DC)</p> <p>PROTECTION - IN INPUT SIDE -HRC fuse -10 Amp. DCOUTPUT SIDE-HRC fuse- 20 Amp. DC</p> <p>INSTRUMENT - Moving Coil Ammeter 0.50 AMP (for D.C)</p> <p>OUTPUT SIDE - Provision of Voltmeter to indicate the exact output of DC Voltage range 0.100 V D.C.Provision of voltage selector switch and current selector switch, 3 way, 50 AMP range.</p> <p>CABLE:- INPUT SIDE - 1.5 mtrs insulated copper wire with 3 pin Top, 15 AMP</p> <p>OUTPUT SIDE - 15 mtrs insulated copper wire of 4 mm sqr. fitted with insulated clamp.</p> <p>DIOD - Diod should be 70 AMP range.</p>
61	Chain Sharpener	<ul style="list-style-type: none"> • Chain vise adjusts to all chain designs and pitches • Chain rotation rollers advance links, eliminating frustrating setup time • Includes 4-1/4 in. x 1/8 in. grinding wheel with 7/8 in. arbor • Mounts to bench, wall or vise • 4200 RPM grinding speed, 60 Hz, 85-Watt • Plugs into a standard 12-Volt wall outlet
62	Small Tools	<p>A tool box contains following type of tools make Taparia or equivalent with required quantity as below:</p> <p>a) Opened D spanner (12 pcs of different size) – 1 set</p> <p>b) Screw Driver set (6pc) – 1 set</p> <p>c) Pipe Wrench (10" size) – 1000</p> <p>d) Ring Spanner set (10pcs of different size) - 1 set</p> <p>e) Allen/ Hex key set (9 pcs of different size) - 1 set</p> <p>f) Wire Cutter – (6") – 1Pc</p>

		<p>g) Highly insulated cutting plier – 1 no</p> <p>h) Nose plier (highly insulated) – 1 no</p> <p>i) Adjustable spanner – 1 no</p>																				
63	Temporary Shelter (flexi Tent for 6 men)	<p>Length 4.2m</p> <p>Width 4.2m</p> <p>Max Height 2.1m</p> <p>Floor Area 225 sq. ft.</p> <p>Volume When packed 1.4m x 0.8m x 0.4m</p> <p>No of Doors 2</p> <p>No of Windows 2</p> <p>Wt w/o Access 80Kg</p> <p>No of Chambers 4</p> <ul style="list-style-type: none"> • The shelters consist of tubular arch support structures manufactured from Rubber Coated Nylon Fabric. Thick PVC coated fabric floor is permanently attached to the shelter. The outer Canopy is made of fire retardant Rubber/PVC/PU coated Polyester/Nylon fabric. • Doors and windows are fitted with one layer nylon net to prevent mosquitoes and insects at night. • These shelters are very simple to set off in less than 15 min's or deflate and roll it into packed portable package. <p>This information given above is for guidance only. The standard accessories we offer with these shelters are.</p> <ul style="list-style-type: none"> • 1 Foot Pump & Electric Blower / battery operated electric blower. • A set of repair kit • Carrying Valise • Nylon rope • Pegs of required sizes 																				
64	UV Treated Polypropylene Tarpaulin	<p>Material: Cotton, canvas, Size: 12x18 ft., 100% water proof, Strength: Ability to hold together when subject to force, strength includes wind resistance or a trap ability to resist tearing or breakage from high winds. Corrosion: Tarpaulin should resist corrosion from UV light and foreign materials such as oil, acid, grease and mild dew. Special coating will be there to trap to prove resistance to different types of degradation. Abrasion Resistance: tarpaulin should have resistance to tearing.</p>																				
65	Cooking Utensils	<table border="1"> <thead> <tr> <th colspan="4">List of Items for each set of free kitchen Utensils</th> </tr> <tr> <th>Sl. No</th> <th>NAME OF THE ITEM</th> <th>SIZE</th> <th>QUANTITY</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Flat Honda with Cover(Aluminium) IS-1660-2009 with latest amendment</td> <td>30 inch</td> <td>2</td> </tr> <tr> <td>2</td> <td>Flat Honda with Cover(Aluminium) IS-1660-2009 with latest amendment</td> <td>25 inch</td> <td>2</td> </tr> <tr> <td>3</td> <td>Flat Honda with Cover(Aluminium) IS-1660-2009 with latest amendment</td> <td>23 inch</td> <td>2</td> </tr> </tbody> </table>	List of Items for each set of free kitchen Utensils				Sl. No	NAME OF THE ITEM	SIZE	QUANTITY	1	Flat Honda with Cover(Aluminium) IS-1660-2009 with latest amendment	30 inch	2	2	Flat Honda with Cover(Aluminium) IS-1660-2009 with latest amendment	25 inch	2	3	Flat Honda with Cover(Aluminium) IS-1660-2009 with latest amendment	23 inch	2
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		4	Flat Honda with Cover(Aluminium) IS-1660-2009 with latest amendment	16 inch	2
		5	Kadai (aluminium) IS-1660-2009 with latest amendment	28 inch	1
		6	Kadai (aluminium) IS-1660-2009 with latest amendment	26 inch	1
		7	Kadai (aluminium) IS-1660-2009 with latest amendment	15 inch	1
		8	Bucket (Aluminium) IS-1660-2009 with latest ammendment	12 inch	4
		9	Disw Bucket (Aluminium)	12 inch	2
		10	Gangula(Stainless steel)	18 inch	5
		11	Mug (Stainless steel)	1 ltr	5
		12	Dabu (M.S)	Big	3
		13	Thali (Stainless steel)	13 inch	5
		14	Glass Stainless steel)	8 inch	10
		15	Service spoon Stainless steel)	12 inch	5
		16	Rice Spoon Stainless steel)	9 inch	5
		17	Hemadasta (M.S)	10kg	1
		18	Panaki(M.S)	6 inch	1
		19	Korana(M.S)	6 inch	1
		20	Khanta(M.S)	Big	2
		21	Rice Chatu (Stainless steel)	13 inch	2
		22	Zhazara (M.S)	12 inch	2
66	G.I Trunk	22 SWG Galvanized iron (G.I) Trunk of size 6ft*3 ft*2.5ft with four bottom pad, four lifting handle. Two (6*4) inches side perforation with wire mesh inside (four side) for air ventilation.			
67	Hand held search light LED type	<p>Led search light with rechargeable 3 watt LED power consumption</p> <p>Specification:</p> <p>Hi-Beam Rechargeable hand held search light Led -5 watt.</p> <p>Body material-ABS water proof</p> <p>Light Range- 800 mtrs.</p> <p>Light spot-400 mtrs.</p> <p>Power adopter-AC-110-240 volt</p> <p>Output voltage current-8.6 volt-500Ma.</p> <p>Ac frequency-50/60 Hz</p> <p>Illuminating time-more than 05 hours</p> <p>Weight- Not more than 1.25 KG</p> <p>Battery service life -300 Cycles</p> <p>Front Glass- Toughened</p>			
68	3 KVA Diesel Generator Sets with all accessories	Inverter Technology, AC and many other appliances output, ultra silent, portable, compact, with road clearance wheels, Max output-3000KVA, Rated output 230V/50Hz single phase,-2800VA,230 V Engine type, single cylinder, Air cooled, Engine Throttle-Electronic Governor (Load sensitive),choke- Auto, engine control panel display- i – Monitor Equipped, starting- Electric/ Recoil Start, Fuel Type- Unleaded petrol, Fuel Tank capacity (Ltrs)-12.5 Oil alert system, Ac Circuit protection			

		device, Pilot lamp Related speed 3000RPM with all accessories.
69	Extension Cord and Board	<p>Material of Box- Wooden box with fibre cover of suitable size to accommodate 3 set of 15A, 5pin socket with 3nos. 15A switch, one indicator, one fuse.</p> <p>Cable: 1.5 mm copper material of triplex wires confirming to BIS standard of 50 mtr length along with a PVC reel of suitable size for easy winding to accommodate the cable with in the reel.</p>
70	Range Umbrella	<p>Range Umbrella stand should be made of two pieces of stainless steel having provision of adjustable screw on the middle of the stand. The length of the stand from the top of the umbrella to the middle should be around 50 inches and that from middle screw to bottom (lower stand) should be around 51 inches with an aluminium plate fixed on the lower stand keeping a distance of around 16 inches from bottom. The circumference of the stand should be around 3.5 inches. The bottom of the stand should be dice pattern for smooth installation of the umbrella. The umbrella should have 12 nos. of G.I. sticks each having length of around 42 inches and the base level distance from one stick to other should be around 20 inches. The umbrella should have folding and locking facilities. The cloth of the Umbrella should have two cotton layers having multi-colour pattern chandua patch work as per the cloth used in Chandua of Pipili of Puri District.</p>
71	Camp item, Folding Table and stools	<p><u>Folding Table:</u> Material of construction: PVC Size: 1150L x 740W x 725H</p> <p><u>Stool:</u> Material : PVC Size: 290Lx290Wx470H</p>
72	Office Furniture	<p>Each set of furniture consists of the following items:</p> <p><u>1. Executive office Table:(01 No.)</u> Size: 1400 X D - 600 X H - 750</p> <ul style="list-style-type: none"> • Made from 36 mm honey comb MDF Table top and Side panels. • Contains 15 mm MDF half modesty panel. • Pedestal made of 25 mm honey comb MDF. • Pedestal contains 3 drawers and is easy to move. <p><u>2. Executive Chair :(01 No.)</u> PU upholstered seat and back. Cantilever base made of stainless steel/ MS with chrome plated. Dual tone arms with wood and aluminium. Size: 570Wx660Dx975H</p> <p><u>3. Visitors Chair (02 Nos.)</u> Reputed make PVC chain with dimension 610Lx620Wx910H</p> <p><u>4. Steel Almirah:(01 No.)</u> Size 78"Hx36"W 19"D .Having 4 adjustable shelves making 5 equal compartments. The doors are provided with a 3 way locking mechanism controlled by a 6 lever un-pick able lock with keys in duplicate. The doors will be made out of 20 gauge and other parts in 22 gauge CR-CA prime quality steel sheets and manufactured as per BIS specifications.</p>

73	Rescue Tender	<p>The vehicle should be designed to cater the needs of emergency created due to road accident and many other building and industrial accident.</p> <p>Chassis: - TATA LPT 1616/42/ Ashok Leyland/Mahindra/equivalent chassis with spare tyre, conforming Euro III /Euro IV norms to be provided by the bidder.</p> <p>The fabrication shall be carried as per the specification provided.</p> <p>A) GENERAL: Emergency rescue van including all accessories such as electrical winch of 5-ton capacity operated through chassis battery, pneumatic light mast with telescopic section and top section each with 4 X 1000 watts weatherproof halogen lights. Power generator (alternator driven through vehicle PRO) of 20 KVA, 0.8 PF , 415 volts, stowage compartment for all rescue equipment's of ROLL –ON – ROLL-OFF shutters with aluminium rolling type with stowage tray fitted with sliding bearings (drawer type) shall be designed & manufactured as per relevant IS (949 -1967) with latest amendment.</p> <ol style="list-style-type: none"> 1. The specification mention here under lays down the requirements regarding material, design, construction, workmanship and finish, accessories and acceptance test of emergency rescue van. 2. All the requirement and accessories shall be fixed on the appliance in a compact and neat manner and shall be so placed that each parts is easily and readily accessible for use and maintenance. The center of gravity shall be kept as low as possible. <p>B) MATERIAL SELECTION AND TREATMENT :</p> <p>The choice of materials to be used for construction of the appliance shall be made with a view to combine lightness with strength and durability.</p> <p>Timber shall not be used in construction.</p> <p>All parts, which from waterways or come in to contact with water, shall be of corrosion resisting material of suitability treated with corrosion resist corrosion.</p> <p>C) CREW CABIN AND BODY WORK :</p> <p>Enclosed accommodation for driver, officer and four firemen (total 6 people including driver) shall be provided in the driver cab cum crew compartment two doors on each side be provided on driver cum-cum-crew compartment. The doors shall be hinged opening outward and shall be hung forward and shall have catch lock and flush type handle. The entire structure of the appliance shall be welded stricter made from 14SWG MS pressed section and channel with aluminium panelling. The outer panelling shall be done from 16 gauges with aluminium panelling. The inner panelling shall be done from 16 Gauge aluminium sheet.</p> <ol style="list-style-type: none"> 1. Minimum 9 or sufficient number of locker for storage of all
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equipments shall be provided with external access. The bottom of all the lockers shall be off chequered aluminium plate fitted on the base frame to avoid bending of the plates. Side of the lockers shall be of aluminium plates with suitable stiffener.

2. Lockers (equipment compartments) shall be closed by **BEST QUALITY aluminium roller shutter** and accessible from ground level. Equipment body work roof shall be covered with aluminium checkered plate. All drawer compartments for storing equipments shall be of light, stable aluminium and fitted with one handle and mounted on easy slide ball bearings.
3. All lockers shall be fitted with internal lighting, capable of being automatic "ON & OFF" by the opening and closing of shutter. A master switch for isolating the locker lighting circuit shall also be fitted in the driving compartment.
4. Grab rails and non-slip step shall be provided to give access to the roof of the appliance and for easy and speedy removal and mounting of equipment including ladder.
5. Ladder gallows shall be provided on top of the vehicle with proper locking arrangement for the ladder.
6. Mesh should be provided to protect the front and side glasses, inside crew member with arrangement replace it in peace time.

D) LOCKERS :

All lockers / compartments shall be suitable for stowing various rescue equipment's. Suitable brackets for storing the equipment in the lockers shall be made wherever possible according to standard equipment supply.

E) EXTENSION LADDER :

A 10.5 – meter double extension aluminium trussed type extension ladder shall be provided on the suitable ladder gallows.

F) STRETCHER LADDER :

In addition two stretcher ladders shall be mounted separately on the appliance in such a way that they would be easily, quickly and independently removed, when required.

G) STABILITY :

The stability of the appliance shall be such that when under fully equipped and loaded condition (equivalent weight of crew to be loaded in lieu of crew) if the surface on which the appliance stands tilted to either side, the point at which over turning occurs is beyond angle of **25** degrees from the horizontal.

H) WORKMANSHIP AND FINISH :

The standard workmanship and finish of all mechanical and their parts shall be such that the parts normally required to be replaced

can be supplied and shall fit correctly.

The emergency rescue van shall be painted FIRE RED as per IS 536.

The driving compartment, crew's compartment and inside of lockers shall be painted cream.

All other parts except engine shall be painted black.

Necessary anti-corrosion and priming coats shall be applied before painting.

I) ACCESSORIES

The following accessories shall be provided in addition to those normally fitted on the chassis.

Fire bell 10" hand operated	1 No.
Siren operated on power supply of vehicle	1 No.
Fog lamps	2 No.
Reversing light to assist reversing	1 No.
Amber blinker type	1 No.
Trafficators blinker type	2 No.
Search light with 30-M cable reel	1 No.
Inspection lamp with brackets to be to the battery of the engine	1 No.
Revolving beacon light	2 No.
Side Flashing Square Lights	4 Nos
Rear Amber Blinker Signal Light	2 Nos.

J) CABLE WINCH :

An electrically operated heavy duty efficient cable winch of 5 ton capacity with CE safety approval should be provided. The winch unit should be complete with minimum suitable 12 / 24 V DC series wound electric reversible motor for increased pulling power, rope drum and 90 ft heavy duty galvanized EIPS wire rope with replaceable self locking clevis hook and should be mounted at a convenient location on the vehicle.

K) POWER GENERATOR (Alternator):

A built in – 20 KVA generator reputed make shall be installed within the body / chassis frame. Self excited and self governing three phase brushless generator with out brushes, surface cooling, enclosure voltage regulation (+/-) 5% at nominal speed, double bearing automatic voltage regulator (AVR) to maintain set voltage under speed protection by V/F faction , rated 415 V/3 phase, 1500 RPM, 50HZ.

L) CONTROL PANEL (SWITCH BOARD) :

Following item shall be fitted/ located on control panel
Main safety switch
3 five pole sockets (15 A/440V)
3 two pole sockets (15 A/440 V)
Frequency meter, ammeter, voltmeter, lighting

M) PNEUMATIC OPERATED LIGHT MAST :

An imported telescopic light mast TEKLITE or equivalent mechanically and pneumatically operated shall be provided as per below:

- 1) Location: in the superstructure on the right behind the driver's cab.
- 2) Max. height and in any position
- 3) Actuation: pneumatically extendable and retractable
- 4) Locking: At any height and in any position
- 5) Rotation : 360 degree (180 degree each to the left and right)
- 6) Torsion protection : by grooves
- 7) Light bridge: minimum **4 flood light 1000 watt** each including complete electric installation flood light to be able to be turned, tilted and fitted individually with wire mesh cover.
- 8) Storage: the floodlight shall be protected from weather during storage in water proof box. The protection top to be extended together with the flood lights. Arrangement to automatically lock the flood lights when retracted in to the protective box by means of guide grooves.
- 9) Actuation: able to switch ON/OFF from below.
- 10) The light mast should be mechanically and pneumatic operated through air compressor of the vehicle engine upto maximum height of 6 meter vertically from ground shoulder rigidly fix rear off sight of the vehicle .Light should have 4 X 1000 watt halogen flood light projection on weatherproof casing having swatch for operation. Switch ON/ switch OFF provision should be made. Suitable connection for taking power supply from generator through spiral F.R.L.S. wire in protective sleeve to the earthed sockets at the projector should be provided. Control panel should be below the mast or at suitable place in weatherproof box. A permanent connection from generators should also be provided. The floodlight should lock in the box for protection against damage when not in use.
- 11) A wired and wireless remote control shall be provided for all light mast functions including extension, retraction, lights on / off, pan / tilt, rotation, etc.

N) PUBLIC ADDRESS SYSTEM :

Public address system shall be provided in the driven cabin with preferably AHUJA/PHILIPS make amplifier, microphone, hooter (two tone hooter).

O) INSTRUCTION BOOKS, ACCESSORIES AND EQUIPMENT: 6

sets of illustrated books for the guidance of the user, including both operating and normal maintenance procures, for the appliance, machinery, equipment and gadgets shall be supplied

with the appliance. The books shall include itemized and illustrated spare parts list giving reference to all wearing parts.

P) Equipments as per Annexure-1 shall be supplied and stowed in ERT at suitable location in compartments and lockers.

Q) MARKING: shall be done as per our choice / norms.

R) DRAWING FOR APPROVAL: dimensional general arrangement drawing of views, cross sections, layout of various main equipment / accessories, technical parameters shall be submitted with tender.

S) SCOPE FOR SUPPLY. WORK AND TRAINING :

- 1) All necessary working tools and set of special tools required for maintenance of the appliance shall be supplied.
- 2) Spare parts catalogue & test certificate shall be provided with appliance.
- 3) Necessary training shall be imparted for safe operation and maintenance of the appliance.

T) ACCEPTANCE TESTS :

- 1) Road test / stability test shall be carried out as per standard practice.
- 2) Practical demonstration of all rescue tools, machinery's gadgets, equipment's etc. shall be imported.
- 3) Test certificate shall be submitted for all imported safety / personal protective equipment's.
- 4) INSPECTION: three –stage wise inspection shall be carried at your works.

Annexure-1

LIST OF RESCUE EQUIPMETS TO BE SUPPLIED WITH RESCUE VAN

Sl. No	DESCRIPTIONS	QTY	
1	Compressed Air Breathing Apparatus set positive pressure 45 min duration complete with spare cylinder (Scott, USA or equivalent make)	4	Sets
2	Under water BA set (under water rescue) with spare cylinders. 12 L cylinder with harness, pressure gauge and regulator. Imported make. Make: Seacsub/ Equivalent	4	Sets

		3	Wet Suit: the wet suit shall be one piece design overall with hood and zipper made from 3 mm reflective neoprene rubber. The wrist, ankle, and face seal shall be water tight. The suit shall be supplied with pair of 5 fingered heat reflective gloves made from 3 mm reflective neoprene rubber with double lining. The suit shall also be supplied with a pair of boots, which are made from heat reflective 5 mm neoprene rubber lining, non slip sole and nylon side zipper. Suitable fins should also be supplied along with half / full face mask Make: Seacsub, Italy – Wet suit with accessory/ Equivalent	4	Sets
		4	Encapsulating Chemical Protective Gas tight and splash protection Suit with gloves and boot NFPA 1994-2007 certified including for Chemical / Bio terrorism use – reputed imported make Make: Kappler, USA/ Respirex/equivalent	2	Set
		5	First Aid Medical Outfit - for 50 persons	2	Sets
		6	Blanket Woolen (in box)	6	Nos.
		7	Blanket, Asbestos 2 x 2 mtrs (in box)	1	No.
		8	B.A. Compressor should be an imported 3 or 4 stage, 250 lpm free air delivery, operating pressure 200 & 300 bar with one filling connection each for 200 bar and 300 bar, auto drain / auto stop. The compressor should be driven by a three phase electric motor coupled to the compressor. Make: Nardi, Italy/ Bauer/ Equivalent	1	Set.
		9	Portable smoke exhauster / ventilator should be light weight with weight less than 45 kgs., compact having fan size 16” with minimum 10 blades capable of airflow output of minimum 40,000 cu. M. / hr with minimum 5 h.p. petrol engine. Ventilator set should be supplied complete with collapsible duct (5 m), 10 deg tilt accessory and water mist adaptor. It should also be equipped with an electronic meter displaying the hours of operation and the engine rotation speed. Make: LEADER,FRANCE/ Ramfanor equivalent	1	Set
		10	Chain lifting 3 tonnes complete with end rings & shackles	1	of 6 Meter
		11	Pulling & Lifting Machine, lifting or Pulling 5 tonnes complete with wire rope & hook	1	sets
		12	Pulling & Lifting Machine, lifting 1.5 tonnes or Pulling 3 tonnes complete with wire rope & hook	1	Sets
		13	Chain saw wood cutting (electrical with CE safety mark) single phase AC/DC Voltage 220-250, guide bar min 50-60 cm. cutting capacity 50 – 60 cm, along with spare chain Make: Stihl, Germany/ Equivalent	1	No
		13. a	Portable Concrete cutting chain saw with guide bar and diamond chain of minimum 14”, petrol engine operated with spare chain. Weight within 15 kg. Make: ICS, USA/ Equivalent	1	Nos.
		13. b	Portable petrol engine operated carbide tipped chain saw with 20” guide bar and chain with spare chain and depth gauge. Weight within 15 kg. Make: Stihl, Germany/ equivalent	1	Nos.

		13. c	Rotary circular saws, petrol engine operated with 14" diamond blade and 5 different types of abrasive blades, with spare blades for all types of blades. Weight within 15 kg. Make: Stihl, Germany/ equivalent	1	No.
		14	Portable Rotary Electric Hammer Drill with spare bits. Voltage 220-250 V, power 620 W approx., impact rate 0.2000 per min., rotary Drill Bit of 300 mm long – 2 Nos.	1	Set
		15	Fire Hook	5	Nos.
		16	Graphnel with nylon rope of 40mm Circumferences & 30 m length	5	Nos.
		17	Long line 30 m size 50mm circumferences	1	Length
		18	Lowering line, 50 m size 50mm circumferences	1	Length
		19	Short line 15 m size 50mm circumference	2	length
		20	Safety Belt – full body Harness with hook & rope	2	no
		21	Hardwood Blocks, assorted from 75mm to 225mm thick	12	no.
		22	Spades	6	no.
		23	Mattocks, Handle	6	no.
		24	Pick Axe with Handle	6	no.
		25	Axes, felling	6	
		26	Crow Bar 1 meter long	6	Nos.
		27	Sledge Hammer	6	No.
		28	Hammer – 10 Kg.	6	Nos.
		29	Rake – 3 Prong	1	No.
		30	Rubber Gloves in container tested with 10,000 V	10	Pairs
		31	High Safety Boots (high voltage)	6	Pairs
		32	Mat Rubber Large	2	Nos.
		33	Engineering Tools set consisting of: DE spanner 8" x 3/4" – 2 Nos Flat file through 8" – 1 No Three square file 6" – 1 No Chisel 6" – 1 No Screw Driver 8" heavy – 1 No Screw Driver 18" heavy – 1 No Allen Key 105 to 10 mm – 1 set Cutting plier heavy – 1 No Long nose pliers 7" heavy – 1 No Hack saw with blade 12" – 1 No Tool Box – 1 No Tin cutter – 1 No Pincer – 1 No	1	Set
		34	Electric Tools set consisting of: Industrial plier 10" heavy – 1 No Insulated screw driver 8" – 1 No Electrical hand gloves tested at 11 KV Electrical tester heavy – 1 No Tool bag – 1 No Insulated tap – 1 No	1	Set
		35	Carpenter Tools Set consisting of: Carpenter hand saw 24" – 1 No Carpenter chisel farshi – 1 No Carpenter try square 12" – 1 No Screw Driver 8" heavy – 1 No Cutting Plier 8" heavy – 1 No Wooden mafra file 10" – 1 No Carpenter tool box – 1 No. Chopper – 1 No.	1	Set
		36	Shears, bolt cutter large with insulated handle of 600mm	2	Nos.

		37	Shears, bolt cutter with insulated handle of 400mm	2	Nos.
		38	Spreader for iron railings, double screw type 125 to 175mm travel	2	Nos.
		39	Plastic traffic cones: Fiber glass cone with provision for fixing flasher, painted with red and white fluorescent strips. The cone shall also be fixed with reflectors on both sides.	10	Nos.
		40	Rechargeable torch: Ni-Cd battery with quick charging facilities with spare battery pack simultaneously charging facilities, weight approx. 440 gms, 25000 peak beam in heavy duty bezel, "O" ring sealed, operation 1.7 hours continuous, minimum 5.5 watt black dot xenon bulb, antiglare coating, for maximum visibility in smoke & fog, shall be approved by UL. Make: Wolf/Pelican/Equivalent	4	Nos
		41	Water Proof rechargeable torch: The torch shall be water proof and Atex approved. There shall be 3 point toggle switch with intensity halogen bi-pin type 8 watt bulb two ultra bright blue LED on the back side. The min run time of the torch shall be 3 hours with steady mode with halogen bulb and 6 hours with LED. The torch shall have rechargeable type led acid/Ni-Cd battery with 6 volts,4.5 Ah capacity. The approx. weight of the torch shall be 1.5 kgs. And shall be supplied with quick release strap and charging accessories. The torch shall all safety standards applicable and shall be brand new and of reputed make. Make: Wolf/Pelican/Equivalent	2	Nos
		42	Cordoning radium type rope – 5 Metre	6	Nos.
		43	Full body safety harness made from Kevler for cut and heat resistance for working in any condition, EN 361 Make: Karam/ Petzel/equivalent	3	Nos
		44	Drivers Knife: The driver's knife shall be made from sea water grade stainless steel material. The minimum handle length shall be 4" having one side sharp edge and other side saw edge Make: Seacsub Italy/ Equivalent	2	Nos.
		45	Drilling machine 0 230 V(With a set of drill 12 Nos.)	1	No.
		46	Steel bucket (9 liter capacity)	10	No.
		47	Proppings– 20 ft. length (for propping at house collapses telescopic)	2	Nos.
		48	Water Proof suits (rain coat)	2	Nos.
		49	Rollers for moving heavy objects (6" dia x 4')	2	Nos.
		50	Nylon ropes three strand Hawser laid size 50mm circumferences 30 m with breaking load 5.3 ton (IS:4272)	4	Nos.
		51	Clean Gas type Fire Extinguisher of 05 Kg.	5	Nos.
		52	Chokes (metal) for vehicles	4	Nos.
		53	Insulated plier (12" size) screw driver (14" size) fuse remover, electrical tester	1	Set
		54	Salvage sheets 12'x12' & 6'x4' – 1each	1	Set
		55	Nylon Rope ladder with snap hooks of 25 m length with aluminium round	1	No.
		56	Parachute knot complete for lowering purpose	1	No.
		57	3 layer Fire Proximity suit (aluminized) with helmet, hood, gloves & boots, Make: Modern make DIFR Approved	2	Sets
		58	10.5 m trussed type double aluminium extension ladder (ANGUS type) FIRESCAPE or Equivalent make	1	No.

		59	Inflatable Rubber boat – 5 persons (bellow type – with hand pump (rubber dinghy without board motor 25 HP.	1	No.
		60	Life Jacket foam type IRS/MMD approved in accordance to SOLAS specification, LSA code with latest amendment: The jacket shall be foam field having floatability of 16.5 kgs. The size of the jacket shall be 80 x 37 x 10 cm approx. The jacket shall be provided with 3 M reflective tape with whistle. The cover of life jacket shall be made from nylon and orange in colour. The foam shall be soft neopropylene foam & airex. The life jacket shall be provided with suitable Velcro / straps for securing.	10	Nos.
		61	Life Buoy MMD approved with 30 m rope: The ring buoys shall be made from polyurethane having 800 mm O.D. and 430 mm I.D. the bouncy shall be minimum 19.5 kgs. & the weight shall not be more than 4.5 kg. The ring buoys shall be provided polypropylene rope having 9.5 mm dia. The colour of the ring buoys shall be orange. The ring buoys shall be approved by IRS/MMD in accordance to SOLAS specification LSA code with latest amendment.	10	Nos.
		62	Angle cutter (electric rescue saw) voltage 220-250V, Wattage – approx. 2500 w, RPM min. 4000, disc diameter max. 250 mm (12”). Arbor size 20 mm with diamond tip blade – 2 Nos. and composite blade – 5 Nos	1	Set
		63	Night vision OWL optics binoculars, focused ranged 25”, field of view 596’ at 1000 yards with storage case (imported)	1	set
		64	Rechargeable light for search & rescue operations: Rechargeable battery of lead acid type having 10 AH capacity, high intensity halogen 20 watt bulb, 400 lumens, minimum 100000 candle power, made from high impact ABS thermoplastic housing with rubberized impact bumpers, and scratched resistant lens cushion grip handle, up to 9 hours continuous run time, approx. size L 11.5” x W 5.1” x H 7”, approx weight 7.4 lbs with AC & DC charger with mounted rack. Orange or yellow colour, CE approved. Make : Pelican/Wolf/Equivalent	2	Nos.
		65	Hydraulic Electrical-Hydraulically operated spreader complete with chain set; The minimum spreading force on the open arm – 20 tons Minimum spreading distance – 600 mm Minimum spreading force at closed arm – 34-110 kN Minimum pulling distance – 495 mm Minimum pulling force – 28 kN Weight not more than 20 kgs. The equipment shall be completely independent from any external hydraulic power unit or hoses and shall be operated independently from each other by an electric power cable with adapter attached on the tool with back up of a rechargeable high capacity LI / Ion integrated Battery. To be supplied with battery charger, Power supply cable, 20m extension cable reel. Accessories: Pulling chains, chain adaptors. The design of the tool shall be based on EN 13204 with type test certificate. The tools shall be of reputed make. Operation and maintenance manual shall be supplied Make : Lukas, Germany, with chain SET/ Hurst	1	Set

		66	<p>HYDRAULIC ELCTRO-HYDRAULIC CUTTER Min. blade opening: 150 mm Weight not more than 20 kgs Cutting capacity 30mm min. Cutting force 600 kN min.</p> <p>The equipment shall be completely independent from any external hydraulic power unit or hoses and shall be operated independently from each other by an electric power cable with adapter attached on the tool with back up of a rechargeable high capacity LI-Ion integrated Battery. To be supplied with battery charger, Power supply cable, 20m extension cable reel. The design of the tool shall be based on EN 13204 with type test certificate. The tools shall be of reputed make. Operation and maintenance manual should be supplied. The design of the tool shall be based on EN 13204 with type test certificate. The tools shall be of reputed make Operation and maintenance manual Tool kit with spare set (pair) of cutting blades Make: Lukas, Germany, with spare pair of blades/ Hurst or Equivalent make</p>	1	set
		67	<p>Hydraulic Electro-Hydraulic Rescue Ram Minimum Lifting force – 100 kN. Retracted Length not more than - 550 mm Minimum extended length – 900mm without extension and 1200 mm with extension – 1200 mm Min. Piston stroke – 350 mm Min. stroke of 2nd plunger – 300 mm Weight not more than 20 kgs</p> <p>The equipment shall be completely independent from any external hydraulic power unit or hoses and shall be operated independently from each other by an electric power cable with adapter attached on the tool with back up of a rechargeable high capacity LI / Ion integrated Battery. To be supplied with battery charger, Power supply cable, 20m extension cable reel. The design of the tool shall be based on EN 13204 with type test certificate. The tools shall be of reputed make. Operation and maintenance manual. should be supplied.</p> <p>The design of the tool shall be based on EN 13204 with type test certificate. The tools shall be of reputed make Operation and maintenance manual Make :Lukas Germany, with extension/ Hurst or Equivalent make</p>	1	set
		68	<p>SINGLE ACTING COMPACT HYDRAULIC DOOR OPENER: The door opener same company is essential and door opener shall be hydraulically operated with two toes, one fixed and one moving and it shall be suitable to force open doors of building that open to the inside and that can be reinforced or blocked. Spreading force: minimum 125 kN, Stroke minimum: 100 mm, weight under 15 kg, should come in a packed box from the OEM. Make: Lukas, Germany, model HTS 125/ Hurst /equivalent</p>	1	No
		Note	All Hydraulic tools shall be CE marked Lukas make or equivalent		

		69	Concrete breaker / chipping hammer – big impact rate min. 0-1400 per / min. power input – 1240 watt, single phase 230-250 volts, light in weight, shock proof body with required accessories with pointed and flat bit (electrical operated)	1	No.
		70	Rescue saw for laminated glass, metal and wood with charger and replaceable spare blades: Strokes per minute: 0-2000 Stroke Length: 1 inch / 25 mm Battery: rechargeable li-ion 18V, 2 Ah Weight: within 5 kg As a back up a separate manual hand saw for cutting laminated glass shall also be provided.	1	No
		71	PNEUMATIC LIFTING AIR BAGS (flat type) AND ACCESSORIES: Working pressure shall be minimum 10 bar & made from Kevlar reinforced nitrile rubber with 3 layers aramide reinforcement, Non slip design, capable of being interlocked when 2 bags are placed on top of each other. Insertion thickness of the bag shall not be more than 25 mm including profile Resistant to ozone and range of chemicals etc. The bags shall comply the following requirements Quantity: 1 each of lifting capacity: 10 tons & 20 tons & 40 tons & 65 tons & 80 tons. The air bags are to be supplied with the following accessories: Pressure reducer 300 bar to 10 bar–2No Dual deadman controller with pressure gauges-1 Air hose 5 m with couplings – 2 Nos Air hose 10 m with couplings – 2 Nos Single control unit – 2 No Air cylinder 6L 300 bar – 2 nos. Shut off hose with safety valve – 5 Nos Connection piece to connect two air cylinder – 2 Nos The air bags and all its accessories shall comply the operating requirement and safety standard stipulated under EN 13731. The bags shall be brand new and of reputed make. The dual controller, pressure reducer, single control unit, shut off hose and air hoses shall be supplied in a suitable carrying box Operation and maintenance manual Make: Vetter, Germany, with accessories/ Paratech	1	set
		72	Self rescue automatic escape (standard size) Make: Karam/Petzel	2	Nos
		73	Shovel	6	Nos.
		74	Asbestos Gloves	6	Nos.
		75	Safety goggles	6	Nos.
		76	Safety belt with hook	6	Nos.
		77	Jumping Sheet (Jump Rescue Device 980 x 500 x 360	2	Nos.
		78	Victim Location Unit (Search camera) with 0.01 lux colour camera with telescopic probe (up to 9 ft minimum extended length), 180 degree camera articulation on probe, minimum 5 inch colour LCD screen Monitor display with recording facility, with 2-way communication system with accessories / attachments / extension line (20m min.) for search in under water min. up to 10 m depth (CE marked). EN certificate to be submitted with the offer. Make: Zistos, USA or Equivalent make	1	No

		79	<p>Thermal Imaging Camera: The camera shall have LCD screen display, core /detector (un cooled micro bolometer with digital processing with 4 hour rechargeable battery with spare battery, AC/DC battery charger, wireless transmitter / receiver & other accessories., meeting MIL-STD-810-E standard. It should have coloured temperature pallets (3 types) with zoom and built in video recording feature. The camera shall be reputed imported make. EN certificate to be submitted with the offer</p> <p>Make: Avon-ISI, USA/ Bullard or Equivalent make</p>	1	No.
		80	<p>Temp. Measuring Device – Infrared portable temp. measuring device</p>	1	No.
		81	<p>Ascender & Descender Device with 100 mtrs rope, ascending & locking handle with hook & rescue triangle / rescue evacuation harness with parapet wall anchor – CE approved.</p> <p>Make: Karam/ Petzel/equivalent</p>	1	Set
		82	<p>Multi / 5 – gas detection with volatile organic compounds (VOCs). The instrument shall be compact and light weight. The instrument shall be capable of measuring five gases including combustible gas, oxygen, Co, Ammonia and chlorine. The detector must be approved by European Testing Laboratory as ATEX II 2 G EExiaed IIC T3/T4 50/40 Degree C. The device shall make comply all the safety standards stipulated under EN / NFPA applicable to the gas detection equipment, imported.</p> <p>Make: Industrial Scientific / BW or Equivalent make</p>	1	No
		83	<p>Vehicle Stabilization Kit – Quick Strut (Imported): Quick strut telescopic length 122-200 cm – 2 nos Capacity of strut: 1000 kg Adjustment wrenches – 2 nos. Cluster hooks – 2 nos Straps – 2 nos Protection Sleeves – 2 nos Total weight: within 35 kgs Above should be supplied in carrying bag / case from the OEM</p> <p>Make: Vetter, Germany/ Paratech</p>	1	No
		84	<p>Leak Sealing Kit: Leak sealing bag 1.5 bar with acid protection cover – 1 no. Foot air pump with safety valve – 1 no. Inflation hose 10m, 1.5 bar – 1 no. Tensioning and extension belts 10m – 2 nos Sealing plate 600x300x30 mm – 2 nos. Sealing plate 1000x300x30 mm – 1 no. Transport case for above from OEM</p> <p>Make: Vetter, Germany/ Paratechor equivalent</p>	1	set
74	Tractor with Hydraulic Trailer	<p><u>TRACTOR with Hood</u></p> <p>ENGINE: 42 HP coolant cooled naturally aspirated diesel engine, 3 cylinder (min.), Rated RPM 2100 and above.</p> <p>Transmission: Two wheel drive, 8 or more forward and 3 or more reverse.</p> <p>Hydraulics: Lifting capacity should be more than 1900 Kgf at lower link</p>			

		<p>ends.</p> <p>Steering type: power steering</p> <p>Wheel & Tyre: Front-6.0 X 16, 8 PR Rear- 13.6 x 28, 12 PR</p> <p>Wheel Base: 1950 mm or more.</p> <p>Overall length: 3400 mm or more.</p> <p>Overall width: 1800 mm or more</p> <p>Minimum Ground clearance : 410 mm</p> <p><u>HYDRAULIC LIFT TROLLEY (TRACTOR TRAILER)</u></p> <p>01. Hydraulic Cylinder: 5 ton capacity, Single acting hydraulic cylinder along with high- pressure pipe with adopters fitted at end.</p> <p>02. Dimension: Trailer Length – 3200 mm Width – 1830 mm Height -560 mm</p> <p>03. Chassis and main Base Frame: Base chassis size may be min 150 mm. X 75 mm. of C type channel. Cross channel over chassis should be of min. 100 mm X 50 mm size having at least six cross members and two longitudinal member. Additional suitable longitudinal member size 120 X 65 mm may also be provided for hydraulic jack fittings, if required.</p> <p>04. Side Wall Sheet: M.S Sheet 3.40 mm (min) all side open type on hinges except front one.</p> <p>05. Floor Sheet: M.S Sheet 6.00 mm (min), 18-Gauge</p> <p>06. Axle: M S square 75X75 mm (min) or round 80 mm dia (min) The number of axle may be one.</p> <p>07. Wheel Hub: 02 nos. wheel hub heavy duty of 08 holes with branded wheel bearings.</p> <p>08. Fittings: 02 No's light reflectors, 02 No's Registration plates, steel hook etc.</p> <p>09. Tyre Assembly & wheel: 02 nos. wheels (double plated ring type with 8 holes) and accordingly tyre should be two of size 9.00X20 (16 PR) of Brand like JK/MRF/Apollo/Good Year/equivalent, Wheel should be double plate made i.e. one wheel rim should have two plates.</p> <p>10. Painting One Coat of Red Oxide and 2 coats of super synthetic enamel paint.</p>
75	RCC equipment set	<p>Each set consists of</p> <p>Bullet chain saw: 1 No</p>

		<p>Concrete cutter : 1 No</p> <p>Angle Cutter : 1 No</p> <p>The above items are as specified in the sl. No. 36, 17, and 16 of ODRAF item list respectively.</p>
76	10 KVA diesel generator	<ul style="list-style-type: none"> • Genset Output (KVA / KW): 10 / 8 • Engine rating at rated RPM 1500, in KW (BHP): 13.2 (18) • Engine Type: Natural Aspirated • No. of Cylinders / Cylinder arrangement: 2 • Governor: Type /Class of Governing: Mechanical/G2 • Over speed trip (rpm): 1650 • Air cleaner type : Dry • Maximum allowable back pressure, kPa: 4 • Engine Electrical system: 50 Hz • Charging alternator Voltage / Current (DC): 12V / 35Amps • Starter Motor rated voltage (DC): 12 • Battery Voltage (DC) / Capacity (AH): 12V,88AH • Fuel System: • Recommended Fuel: HSD • Fuel tank capacity (Ltr): 50 <p>Cooling System :</p> <ul style="list-style-type: none"> • Cooling system is designed for max ambient: 50 temp, Deg. C at rated load • Radiator System capacity, including engine, : 7.5Ltr • Water pump type: Engine mounted <p>Alternator Specification:</p> <ul style="list-style-type: none"> • Voltage: 415V AC \pm 1.5% • Frequency: 50Hz • Current @ 0.8PF (Amps): 43.4/13.9 • Type: 4 Pole , Rotating • Exciter Type: Brushless • Voltage regulator: Solid State, volts • Insulation: Class H , • Temperature rise: 125 Deg. C (Class • Coupling: Flexible disc, CLOSE COUPLED <p>Standard scope of supply: Engine with direct injection, water-cooled engine, 2 cylinder, in-line, 4 stroke, rated at 1500RPM, conforming to ISO 3046 / BS 5514 has the following specifications:</p> <ul style="list-style-type: none"> • Mechanical FIP • Mechanical governor • exhaust manifold, stainless steel exhaust flexible connection

- Radiator Cooled,
- Filters - fuel, lube oil
- Dry type replaceable paper element air cleaner
- Flywheel housing and flywheel to suit single bearing alternator
- Starting motor – Electric, battery charging alternator
- First fill lube oil and coolant

Alternator: Crompton Greaves/ Stamford/ equivalent

- Brushless alternator
- Self-excited, self-regulated
- Class 'H' insulation limited to temperature rise
- Salient pole revolving field
- Single bearing
- Automatic voltage regulator
- **Acoustic enclosure**–Engine alternator assembly mounted on AVM with Silencer and S.S exhaust bellow suitably optimized to meet stringent sound emission standards as laid down by MOEF / CPCB
 - Base rail with draw-out type fuel tank is provided with a drain plug, air
- Vent inlet and outlet connections, level indicator, manhole etc.
 - Sub-base fuel tank with 18 hours capacity at 75% load.
 - 12V dry, batteries with connecting leads and terminals
- MCB of suitable rating with **short circuit** protection
 - Controller which displays **voltage, current, KW, PF, Frequency, KWh.**
 - Indicating lamps for “**Load On**” and “**Set Running**”
 - **Current transformers** of suitable ratings
 - **Copper cable** of suitable capacity with incoming and Outgoing terminations
 - Control fuses duly wired and ferruled
- **Power cables:** Uninyvin **copper** conductor cables between Alternator & Control panel inside the canopy.
- **Literature:**
 - Operation Manual
 - General maintenance & installation Guideline
 - Foundation Drawing
 - Parts manual

CONTROLLER TYPE	FEATURES	DISPLAY PARAMETER	AUDIO VISUAL WARNING	SHUT DOWN WITH AUDIO VISUAL ANNUNCIATION
GCU ECON M for Genet Controller	Compact and microprocessor based fully configurable control Unit.	Engine Oil pressure	Low Oil pressure	Low Oil pressure
	Graphic display	Coolant temperature	High Coolant temperature	High Coolant temperature
	The unique integrated DG set controller	Fuel level indication %	Low Battery Voltage	Engine Over speed
	Incorporate	Battery	Low fuel	Engine under

			both engine and alternator parameter in one console	voltage	Level	spend
			Fully configurable digital out put	Engine rpm		Low Fuel
			All parameter are settable and password protected	DG set Running Hours		Over load
			Remote start	Generator Volts – Phase – Neutral & Phase - Phase		Under voltage
				Power factor		Over frequency
				KWHR		Under frequency
77	Bolt Cutter	The cutter should have well grip handle of rubber for length of 6 to 8 inches jaws made of cutting high tensile alloy steel, centrally cutting heads should have specially heat treated. the equipment should be designed ergonomically to suitable for cutting hard materials like bolt, iron, rod up to 10-12mm dia. Size of the cutter-30” of reputed make like Taparia /Everest/ Jalani.				

78. TECHNICAL SPECIFICATION FOR FABRICATION AND SUPPLY OF HYDRAULIC PLATFORM-CUM AERIAL LADDER OF 32 METER HEIGHT FOR FIRE FIGHTING AND RESCUE.

GENERAL REQUIREMENT:

- The hydraulic platform shall be designed specifically for the purpose of fire fighting and rescue to enable firemen to go up over and above the other side of any obstruction. It shall comprise of main boom with Telescopic sections and Articulated Booms with Telescopic sections and cage mounted at the end of the boom and the entire unit shall be mounted on a Turn-Table on a Heavy Duty Diesel- Engine chassis of VOLVO/MERCEDES BENZ/MAN make or suitable equivalent chassis, having five axles with two axles in the front and three axles in the rear, with fully factory built cabin and suitable capacity PTO. The vehicle Chassis shall comply BS IV (EURO IV) or latest emission norms.
- The Hydraulic Platform shall be designed as per the designed, operational stability and structural strength based on the criteria laid in EN 1777 and other norms and standards applicable for elevated raised platforms used for fire fighting and rescue operation and the certificate to that effect issued by the competent agency shall be enclosed with the tender.
- The Hydraulic Platform shall be capable to use any angle of elevation without any reduction of load capacity of the cage. It shall also rotate 360 degree at any angle of elevation as well as below ground level subject to boom remaining clear of vehicle body and or any obstruction.

- The appliance shall be compact and fast on the road and easily manoeuvrable in the crowded streets and around sharp corners. The overall dimension shall not exceed the limits specified herein.
- The working height of the Hydraulic Platform shall not be less than 32 meter from the ground and the Horizontal outreach shall not be less than 18-20 meter. The horizontal outreach of the cage of 5 meters shall be attainable at the height of 30 meter from the ground.
- A Telescopic Rescue Ladder shall be attached on the right hand side of the booms. The ladders shall be provided with sufficient width and handrails for rescue of the people at any height during rescue operation.
- The Hydraulic Platform shall be electro hydraulically controlled, permitting precise and easy operations under the most difficult conditions, with ample reserve strength and stability.
- Full safety interlocks shall be incorporated in the design so as to ensure complete safety in operations and long years of reliable and trouble free service, as far as possible the system shall be fail proof.
- The design of the platform shall allow a very large safety margin for extreme operating and climatic conditions. The safe working loads ratings shall include an allowances for the weight of water system and the reaction from the monitor jet while operation.
- The vehicle shall have a levelling system to adjust axial and transverse movement to an angle not less than 7 degree and it shall be in automatic in nature, with an easy to switch full manual over-driving capabilities.
- There shall be a full back up system for all boom movements and outrigger movement in case of failure of main system.
- The complete movement of the platform shall be computer controlled and the system shall be checked for interference sensitivity according to IEC-810-2.
- The control system of the platform shall be fully tropicalised and able to operate in the temperature range up to + 60 degree centigrade and in a dusty and humid condition without reducing the maximum operating limits.

CHASSIS:

- The chassis shall be of VOLVO/MERCEDES BENZ/MAN make or any suitable equivalent chassis, 6x4 having fully factory built cabin and suitable capacity of PTO. The vehicle chassis shall be a right hand drive and shall comply BS IV (EURO IV) & latest emission norms.
- The chassis shall be homologated from the appropriate authority in India in case not already an approved model.
- The engine shall be six cylinder, inline, diesel with direct injection, turbo charged with inter cooler.
- The engine shall develop minimum 200 HP power.
- The gearbox shall be fully automatic with suitable Power Take Off to drive the hydraulic pump.
- Rear Axle shall be Tandem Bogie type with Hub reduction and differential lock between the wheels and axles along with one Tag axle.
- Chassis frame shall be 'C' Channel section made of high strength steel with cross members.

- The steering shall be integral power steering with collapsible steering wheel and column.
- The front and rear Suspension shall be leaf spring type.
- The Brakes shall be dual circuit air brakes with parking brakes acting on rear wheels.
- Fuel Tank-Capacity shall be min 300 ltrs with lockable fuel cap.
- The chassis shall be provided with Radial tyres of suitable size as per load on axles with spare tyre.
- The chassis shall be provided with single day type cab with RED colour, made from high strength steel fully trimmed, external panels hot dip galvanized with hydraulic cab tilting mechanism. The Cab suspension shall be provided with coil spring and shock absorber. The cab shall be provided with adequate ventilation, rear view mirrors, windscreen and windows, adjustable driver seat, wiper system and along with all other standard fitments.
- The Electrical system shall be 24V, with suitable capacity batteries & Alternator for charging the batteries.
- The chassis shall be supplied with standard tool kit, hydraulic jack of suitable capacity minimum 20 ton capacity, operator & workshop manuals.
- The chassis shall be fitted with gearbox mounted, suitable capacity power Take off Unit to drive the hydraulic pump for boom movements.
- The chassis shall comply all the provisions and enactment of Motor Vehicle Act 1988 and Central Motor Vehicle Rules 1989 and any amendment from time to time.

MAIN OPERATING DATA

Working height (minimum)	32 m
Height to working cage bottom (minimum)	30 m
Working outreach at 400 kg cage load (minimum)	18-20 m
Working reach below the ground level (minimum)	05 m
Safe cage working load without water discharge (minimum)	400-500kg
Nominal water discharge capacity of cage monitor (minimum) (with adequate supply pressure)	3800 l/min
Rotation, continuous	360 ⁰
Transport height (depending on chassis)	4.0
Transport length (depending on chassis)	11.0 m
Transport width	2.5 m
Typical weight with chassis, G.V.W. (max) (standard specification)	24-25 ton

CONSTRUCTION:

The appliance shall be robust in construction; materials used in construction shall be carefully selected for lightness and durability. Use of timber shall be restricted in bodywork and use of rubber shall be avoided as far as possible. Ferrous metal parts shall be treated for anti-corrosion by a method other than electro-plating.

BOOMS:

There are two booms, the first boom with telescopic extension providing direct movement and angular movement of not less than 83 degrees, and the second boom with vertical movement of approx. 180 degrees. This configuration results in compact travelling dimensions yet in extreme versatility in operation. The second boom provides an up-and-over capability of approx. 8 m throughout its vertical movement. The main boom elevation and lowering has to be controlled by two hydraulic cylinders that both have their separate safety devices and both can alone carry the

entire load. Tail swing not to exceed the measurements of the truck in any direction. 4(14) The booms shall be welded by the unique plasma welding method to provide high durability and extreme accuracy. For high strength and minimum flexing of the boom sections only high tensile strength steels must be used as load bearing structure. Welding quality certificate of ISO 3834-2 for load bearing steel structures for mobile hydraulic aerial appliances shall be submitted with the offer from an independent agency. All telescopic sections of the first boom move synchronized i.e.. there are no intermediate jerks when the extension / retracting is operated. All sections are fitted with adjustable guides to provide smooth and accurate movement. Different maintenance objects are located well at hand either outside the boom or behind easily removable covers. All booms are internally and externally primed and painted for long life span.

FOLD DOWN RESCUE PLATFORM

- At the front of the working cage there is a rescue platform with automatically operating safety railing to provide additional safety during rescue and fire fighting. The dimensions of the rescue platform are 1,45 m x 0,45 m.

INTERCOM

- There is a fully transistorised talk-back intercom system fitted between the turntable and the cage. The main station with a loudspeaker and movable microphone is fitted in a waterproof box at the turntable. The combined microphone and loudspeaker for no-hands-operation is located in the cage.

RESCUE LADDER

- A stable telescopic rescue ladder system is attached onto the right hand side of the booms. Due to the telescopic design the ladder forms a direct continuous rescue way with no cross-over platform or similar obstacle. The ladder is attached onto the boom structure at several points throughout its length resulting in extreme stability even when operated in windy conditions. Extension movement of the ladder is automatically synchronized with the telescopic movement of the first boom requiring no separate control devices. Both control panels are fitted with visual indication for "safe to climb" position of the ladder. There is a step at the turntable to provide safe access from the 6(14) ladder down to the decking. Thus a continuous way from the maximum height down to the ground is provided for high capacity rescue operations. A ground ladder can be attached if so required.

HYDRAULIC CYLINDER:

- The hydraulic cylinders shall be double acting, fitted with lock valves so as to prevent booms, working cage from lowering or the outriggers from retracting in case of pipe or hose failure.
- The cylinders shall be provided with automatic dampers to prevent the pressure shocks and shall dampen the movement when a mechanical stop is reached.
- Retraction of the outriggers shall be automatically prevented as soon as the booms have been lifted up from their transport position by way of electrical OR Hydraulic interlock system.
- The main boom elevation and lowering has to be controlled by two hydraulic cylinders that both have their separate safety devices and both can alone carry the entire load in case of failure of any one of the cylinders.
- The piston rods of the jack cylinders have to be fully enclosed within rectangular steel profile in order to protect piston from damage caused by any external impacts.
- Lifting of the booms from the transport position shall be prevented before the outriggers are in support position and there shall be a limiting circuit to prevent damage to the Drivers cabin by the first boom when not clear of the cabin.
- All movements shall be automatically limited in their extreme position and the working cage shall be prevented from working outside of the permitted working range in any position.
- An emergency stop switch shall be provided on both control panels, which shall switch off the hydraulic pressure of all movements and shall stop the vehicle engine. The unit shall

be supplied with a manual Bleed Down System and Emergency Hydraulic Backup System.

TURN-TABLE:

- The turntable shall be fully integrated steel structure containing center post, slip rings, water line, etc duly fastened to the main frame by means of slewing ring.
- The rotation for the turntable shall be controlled by hydraulic motor with brakes through oil immersed reduction unit.
- The base control station shall be attached to the turntable so as to rotate with it and be accessible in all positions of the turntable.
- The hydraulic distributor (center post) shall be mounted in the center of the turntable at an accessible position and shall carry the hydraulic pressure and return lines, electrical supply lines & water line allowing continuous rotation in either direction.
- The fasteners retaining turntable to the rotation mechanism shall be of proper grade and shall be torqued properly.
- The rotation gear box fastener shall be of proper grade and torque with proper backlash.
- There shall be provision for the manual rotation of turntable in case of failure of hydraulic system.
- Pins securing the hydraulic cylinders to boom and turntable shall be properly installed and secured.
- The hydraulic hoses, tubing and connections provided in the turntable shall be free from kinks, chaffing or leaks.

MAIN FRAME:

- The main frame shall be welded, box section type made from high tensile steel plates and shall absorb all the stress generated by platform and outriggers.
- The front mounting bolts of the mainframe shall be spring loaded to allow the chassis frame to flex when the outriggers are fully down to avoid any stress concentration on the chassis frame.
- The main frame shall incorporate hydraulic oil tank, outrigger beam housing, and it shall be bolted to the chassis frame and the slew ring support plate shall be welded to the top of the main frame and shall be precision machine.

STABILISING / JACKING SYSTEM :

- The jacking system shall consist of hydraulic operated four outriggers mounted in their housings in the main frame. Each housing shall be fitted with adjustable guides to provide smooth and accurate movement of the outrigger beam. The outrigger piston rods shall be completely protected by closed steel profile.
- The jack shall be H-type construction, each outrigger shall have two separate hydraulic cylinders, the first of which pushes the horizontal outrigger beam out and the second shall push the vertical jack down.
- The jack shall be provided with ground pressure sensors, which shall be correctly actuated before the booms are separated to ensure proper stabilization.
- Each vertical jack shall be provided with self-aligning footplate to spread the load evenly and allow the operation on uneven ground.
- The jacking shall be able to level the vehicle up to 7 degree sideways and fore and aft with automatic levelling system. There shall be manual override system.
- The automatic jacking system shall be controlled preferably by hand held remote control box provided with back lit push buttons for allowing operations.
- Left side outrigger beam out.

- Right side outrigger beam out.
- Automatic levelling.
- Outrigger back to transport position.
- The jacking system shall have following jacking configurations.
- Outrigger beams fully extended on both sides- Rotation continuous 360 degree with max. Outreach and full SWL in cage.
- Outrigger beam fully extended at various-Rotation 360degree as per available outreach on width each side depending upon out rigger width
- All the jack movements shall be infinitely variable within a jacking width of 5.50 mtrs.
- The jacking system shall allow operating each jack individually and the jack projection shall be recognized by the controlling system and the maximum outreach shall automatically be calculated as per the jack width.
- The jacks shall be controlled individually or in pair with lever /joystick and the control panel shall be situated in such a position that, the operator will have clear look to the right and left hand side while extending the jacks. The control panel shall be located at the rear side of the vehicle.
- Yellow Flashing warning lights shall be provided at the outer most point of the jacks to identify the position of the jacks during night operation.
- Four wooden spreader plates shall be provided for the use, when the vehicle is to be operated on soft ground.
- The vehicle shall be provided with Digital inclinometer which will measure both fore, aft and sideways inclination of the vehicle up to min. 7 degree.
- The jacking system shall also have automatic "ONE BUTTON" Variable jacking system with two independent automatically operating and self-controlling safety system to prevent an unsafe configuration.
- The stabilizing system shall also incorporate axle-locking mechanism if required.
- The jacking/ stabilizing system controlling box shall be located in such a way that it allows operator to see outriggers at all times preferable remote control box with wonder lead containing all the control levers, switches, and indication lamps for the operation of stabilization system.
- The available outreach to all directions must be shown on the outrigger display, before the outriggers are extended. This is to save time in an emergency situation, giving the operator the possibility to see the available outreach before setting up the machine.
- The transversal and longitudinal angles of the chassis have to be shown on the display numerically before the outriggers are extended giving the operator the possibility to see whether the levelling capacity of the machine is sufficient without adding extra packing underneath the outriggers.
- in addition, the following controls shall be provided on jack control panel:
 - Starting of chassis engine.
 - Stopping of chassis engine.
 - Activating the outrigger control.
 - Outrigger and outreach display with faultfinding system.
 - Operating hour meter in the display.
 - Switch for the battery driven back up for the hydraulic system.

- Visual indications for levelling of the vehicle (fore, aft & sideways)
- Emergency stop.
- Controls for the automatic jacking
- Engine start/ stop button for diesel engine of standby system.
- The locker containing outrigger controls shall be fitted with an automatically operating door switch and a light for night operation.

ELECTRONIC SAFETY AND OUTREACH SYSTEM:

- The computer-controlled system shall allow outriggers to be positioned and to select the working cage load according to working situation. The system shall be capable to select automatically the maximum allowed outreach to front, rear, right and left side. Based on calculation and parameters saved in the system to guarantee exactly the same outreach regardless of the external influences like wind speed and direction, temperature, friction of the cylinders, etc.
- The display units of the system shall show maximum possible outreach and position of the working cage in real time along with other details.
- The electronic system shall be provided according to the valid standards and directives of European Union. The system shall be EMC tested and certified by third party and EMC certificate must be submitted with offer.

WORKING CAGE:

The working cage shall be fixed to the booms pivoting point about cage floor level to provide highest possible degree of versatility. The cage shall be made of tubular steel profile, welded together and painted with special paint with high durability. The min. dimension of the working cage are 1, 15 m (length) x 2,25m(width)x1,1m(height) and it shall be fitted with two inward opening doors located at the rear right side and left side to enable safe access to the cage in travelling position. The top railing shall be part of the left side cage door so entering into the cage without bending oneself shall be possible. The rescue entrance shall be located in the front and top railing can be moved to the side for safe and easy access. There shall be two fitments for safety belts in the working cage. Safe working load shall be 500 kg when no water is discharged and the cage telescope is in retracted position.

It should be possible that the cage load can be changed from the display units at the outrigger centre, at the turntable or in the working cage. The chosen cage load should be able to be seen on the display by clear symbols and also numerically in selected format. The current cage load shall be shown by graphical bar.

If the selection is made at the outrigger center, the system shall show automatically maximum outreach to all directions with the selected cage load and outrigger positions. If the cage load shall be changed at turntable or in working cage, the system shall show maximum outreach to all directions and additionally outreach diagram in the present direction of the booms.

WORKING CAGE LEVELLING

The working cage shall be kept horizontally levelled in any position of the booms. The levelling system shall be controlled by an automatic hydraulic device with fully automatic and independent safety circuit in case of an uncontrolled levelling failure. There shall be a

master switch for the automatic levelling system, so that it can be isolated and the manually controlled system activated.

WORKING CAGE SLEWING

The working cage should turn 45 degree to each side from its center position to provide safety and comfort ability in rescue operations. The movement shall be powered by a hydraulic cylinder with controls in the working cage and at the turntable control panels. The center position of the cage shall be indicated by a visual indication at both control panels.

STANDARD FEATURES OF THE SYSTEM:

Ground pressure alarm

When one outrigger has not enough ground pressure, the system shall give an audible and a visual alarm. If two outriggers lose ground contact, unsafe boom movements shall be stopped.

Cab Protection

The cab of the truck shall be protected to avoid damage by the booms or working cage. Working in front of the truck close to the cab shall be also possible. When arriving to the cab protection area, the movements of the booms shall be slowed down and stopped softly. Leaving the area shall be done by opposite movements. Cab protection can be overridden by push button.

Automatic drive of booms to transport position

The booms shall be lowered back to transport position fully automatically by pushing a single push button.

Working cage automatically to middle position

Working cage shall be turned automatically to centre position.

Approaching speed

Lower speeds of the boom movements for training and general use for persons not very familiar with the platform or when reaching the building very accurately.

Automatic ladder rung alignment

Align the rungs of the ladder sections automatically in the same line.

Personal profile

The platform operator shall be able to generate his/her own boom movement speed and ramp time profile in the system. Possibility to enter own name for easier selection of own profile.

Zero position of joysticks

All joysticks must be in zero position before activation of RPM for boom movements.

Automatic switch off for the outrigger pressure

Push button version of outrigger controls:

Outrigger pressure shall be automatically switched off if dead man pedal of working cage or turntable shall be pushed. Outrigger pressure shall be also automatically switched off after certain time delay.

Service time reminder

The system shall give an alarm when closing 250h(or every third month) of 1000h(yearly) service time. The service time counter shall be able to reset when maintenance is carried out.

Pressure and temperature of hydraulic oil

Platform shall be equipped with electrical temperature and pressure sensors of the hydraulic oil. The temperature and pressure shall be shown in every display unit.

Tilt alarm

If chassis is tilted or the unit is levelled incorrectly, the system shall give an audible and a visual alarm in every display unit. The tilt alarm angle shall be adjustable.

Language and measure units of screens

The system shall be based on clear and easy-to-understand symbols. If texts are used on master screens, the language shall be English.

All measure units of master screens can be changed to locally used format by operator.

Auto jacking

Automatic levelling system shall be easy and fast way to make platform ready for operation. The system shall be fully automated and enable leveling within less than 30 seconds. The system shall perform very accurate levelling and shall have safety circuits to assure that levelling shall be proper and platform shall be ready for safe operation.

This system shall be controlled by hand held remote control device. The device shall be equipped with following functions (back-lighted push buttons):

- Left side outrigger beams out
- Right side outrigger beams out
- Automatic levelling
- Outriggers back to transport position

Pressure of water in water line

The platform shall be equipped with water pressure sensors(according to customer's need):

- Water pressure in water inlet (>0.0 bar)
- Pumping pressure of water
- Water pressure in water monitor

The water pressure shall be seen on water pump screen on every display unit.

Water flow rate and total amount of water used

Actual volume of water in water line. The water volume shall be seen on water pump screen on every display unit. The system shows also the total amount of water used at one time (this counter can be reset when needed).

Wind speed meter

A wind speed sensor shall be fixed in working cage and can be at place also during transportation.

Wind speed shall be seen on every display unit. When wind speed shall be higher than allowed the system shall give audible and visible alarm. The wind speed meter shall not limit the use of the platform.

Indication of low fuel level

Depending on the chassis used the system shall give an alarm to the operator when the fuel tank shall be getting empty.

Pressure oil filter Service Indicator

If any of pressure oil filters needs unscheduled service, a visual indication shall be shown on every display unit.

Hydraulic tank low oil level alarm

System shall give an alarm to the operator when hydraulic oil level shall be too low in the oil tank.

Temperature of cage floor

Temperature of working cage floor can be seen on every display unit.

Laser Rangefinder

The laser range finder shall be a distance measuring device based on laser technology. It shall be used to quickly calculate the position of the outriggers needed to reach a particular target, based on a given cage load. It consists of a small video camera sized laser device for measuring the distance between the target and the aerial platform and a small and easy to use hand-held computer for displaying results and calculating additional information.

Radio (wireless) Remote Control

The radio remote control shall perform the same standard main functions as the stationary control center including all boom movements, engine start/stop, RPM for boom movements, horn and work lights, emergency stop, all water monitor controls etc. It shall weight about 2 kg including battery. Range shall be about 100 m with standard antenna and 200 m with optional antenna.

HYDRAULIC SYSTEM

- The hydraulic power shall be provided by a reliable and adequate capacity variable displacement axial piston pump, which shall be driven by the vehicle power take off.
- When no operation of the aerial device is activated, the pump shall rotate on minimum flow and minimum pressure. When one of the movements is operated the control valve automatically increases the pressure to a preset constant level and the

oil flow to the amount that is needed for the movements activated. The flow of the pump shall be sufficient to give the supply of Hydraulic oil at required pressure to all the movements activated simultaneously at full stroke without affecting the preset speed.

- There shall be a provision of instant couplings for attachment of manometer in each pressure line for checking pressure of each circuit.
- The filtration system of the hydraulic oil shall consist of suction strainer in the suction line, pressure filters in each pressure circuit, return filter in return line and air filter on the reservoir. All the pressure filters shall have blockage indicator.
- All hydraulic cylinders shall be double acting with hard chrome plated piston rods and shall be fastened by means of self-aligning ball bearings to prevent lateral forces from damaging the seals or piston rods of the cylinders.
- Hydraulic oil tank shall be integrated or fitted into the main frame and shall have a proper heat dissipation system. The tank shall be fitted with oil level gauge, temperature gauge and suction connections with closing valves for easy maintenance and draining outlet with closing valve.

BACK-UP FOR THE HYDRAULIC SYSTEM:

- There shall be a separate single cylinder diesel engine(silent pack) mounted at suitable place, preferably in one of the lockers driving the hydraulic pump, which will provide independent means of hydraulic power in case of failure of main engine of vehicle. The Diesel engine shall have sufficient power to drive all the movements of the booms but at a reduced speed. The engine shall be able to start from all control panels.
- In addition to the above, there shall be battery driven Hydraulic pump, which provides independent means of hydraulic power in case of failure of main engine and standby engine of vehicle. The battery pump can be operated from all control panels.

CONTROLS AND SAFETY:

- The electrical supply needed for control system shall be taken from the vehicle battery which shall be charged when the engine is running.
- When the vehicle is in operation yellow flashing warning lights with siren mounted on the outriggers shall automatically remain on.
- The engine starting and stopping switch shall be provided on all control panels and the engine speed shall be increased to the preset lever as soon as any one of the control lever is operated.
- All boom and rotation movements shall be controlled electro-hydraulically by means of proportional valves. The proportional valve shall not be sensitive to changes of ambient or oil temperature and shall provide smooth, safe and very accurate movements even in most severe operating conditions.
- The speed of the first boom for lowering and extension shall be automatically reduced at maximum outreach. The first boom lifting speed shall be reduced before the maximum.
- All control movements can be performed by the control system from both control panels and the outreach can be selected by the positioning the outriggers. The variable system shall consist two displays, the graphical display and real time information about the outreach and the cage position and also to show possible movements according to cage position by animated arrows. In the text display there shall be main texts for:
 - Warnings
 - Emergency situations

- Help manual
 - Fault finding system
 - Single lamps shall be provided for following functions:
 - For the outriggers, in transport position in driver's cab
 - For the outriggers working position on all control panels.
 - For the transport position of the booms in driver's cab
- For the middle position of the rotation on the turntable and cage control panel.
 - For the exceeding of the safe working load in the cage on the turntable and cage control panels.
 - An overload warning shall be fitted to give an audible and visual warning in case of exceeding the safe working load at all control stations at the same time boom movements shall be slow down and outward boom movements shall be stopped.

TURNTABLE AND CAGE CONTROL PANELS:

- The turntable control panel incorporating all control levers and safety system indicators shall be fitted with a rotatable arm at the side of the turntable. The control panel shall be placed and locked conveniently in its operating position to provide the operator with an excellent view over to different indications of the safety systems.
- The control panel can be rotated and locked in a position enabling direct access from the decking of the vehicle into control system.
- The control station shall be fitted with convenient adjustable seat to provide confort even in case of prolonged operation. The platform underneath the control position shall be covered by non-slip aluminium plate.
- The control panels at turntable and cage shall be exactly alike which will reduce the risk of confusion amongst operators under stress or even panic. Both the control panels shall be provided with weather protection covers/ box.
- The turntable control panel shall have change over switch to select the control station from which the operation is performed.
- Both control panels shall be fitted with following warning, indication and control devices and shall be marked by clear symbols for easy recognition.
- Visual and audible indication for exceeding safe working load.
- Visual warning for activation of working cage collision guard system.
- Visual indication for ground pressure of the outriggers.
- Visual indication for the rescue ladder"Rungs in alignment".
- Visual indication for the center position of the booms.
- Visual indication for the center position of the working cage.
- Starting and stopping of chassis engine.
- Switch for the operating battery driven pump for hydraulic back-up system.
- Starting and stopping switch for standby diesel engine for hydraulic back-up system.
- Joystick control levers for each movement.
- Push buttons/ joystick for cage slewing.
- Emergency stop button.
- Overriding of the automatic working cage levelling system.
- Manual operation for the working cage levelling system.
- Switch for activating the bled down system near the turntable control panel.

CONTROLS AND INDICATORS IN DRIVER'S CAB:

- The following control and indicators shall be provided in driver's cabin:

- Visual warning for the main current being switched on.
- Visual warning for outriggers in travelling position.
- Visual warning for any of the equipment lockers being open.
- Visual warning for the booms not being fully in transportation position.
- Switch with visual indication for rotating beacons.
- Switch with visual indication for siren unit.
- Microphone for the public address system.

SAFETY DEVICES:

- All the hydraulic cylinders shall be fitted with lock valves directly integrated into the cylinder structure to prevent the booms, the working cage or the outriggers from retracting in case of a pipe or hose failure.
- Retracting of any of the outriggers shall be automatically prevented as soon as the booms have been lifted from their travelling position. Similarly lifting of the booms from the travelling position shall be prevented until the outriggers have reached the ground pressure.
- The levelling system of the vehicle shall give audible warning at cage & ground level if permitted inclination increases due to changing ground conditions.
- All boom movements shall be limited at their most extreme positions making it impossible for the operator to reach an unsafe configuration by normal means of operation. The movements having direct influence on the stability of the vehicle shall be fitted with two separate limiting circuits, the first one retarding and stopping that particular movement, and the second one deactivating the whole electric and hydraulic system shall the first circuit fail.
- All major movements such as lifting of the first boom to its maximum elevation, and extending the telescopic movement or lowering the first boom at the maximum outreach shall be fitted with slow-down devices to provide smooth deceleration, and starting of the movement shall also be retarded for smooth acceleration.
- Inadvertent damaging of the driver's cab by the main/ first boom shall be prevented by a system preventing lowering of the booms and rotation movement when the booms are near the driver's cab.
- An overload warning system shall be fitted to give an audible and visual warning in case of exceeding the safe working load in the cage and at the same time boom movements are slowed down and outward boom movements shall be stopped.
- A cage collision guard shall be provided and shall be integrated to cage load sensor to provide additional safety when operating in darkness or in dense smoke. The system shall stop all movements.
- An emergency stop button shall be provided on both control panels to provide immediate and complete "freezing" of all systems in case of an unexpected emergency.
- All the control levers shall be "Dead Man" type and shall automatically come to zero position when released.
- There shall be a "bleed down" system, which can be operated from turntable to lower the booms and bring the working cage down onto the ground even if no hydraulic pressure and electric is available with rotation mechanism.
- When one of the outriggers has not enough ground pressure, the system shall give an audible and a visual alarm. If two outriggers lose ground contact, unsafe boom movements shall be stopped.
- The cab of the vehicle shall be protected from damage by the booms or working cage. Working in front of the vehicle close to the cab shall be possible. When in the cab protection area, the movements of the booms shall slow down and stop smoothly however, the opposite movement of the booms and the cage shall be possible to get out of the cabin protection area. Cab protection system/ mechanism shall be manually overridden by push button.
- The safety system shall bring the working cage automatically to center position while lowering the boom in transport position.

- The vehicle shall be equipped with electrical sensors for temperature and pressure of the hydraulic oil. The temperature and pressure shall be shown on every display unit.
- The vehicle shall be fitted with tilt alarm to give audible and visual alarm on display if the vehicle is levelled incorrectly. The tilt alarm angle shall be adjustable.
- The system of the vehicle shall be based on clear and easy to understand symbols. If texts are used on master screens, the operator shall be able to change the language in use. All measure units of master screens shall be changeable to locally used format by operator.
- The wind speed sensor shall be fixed in the working cage. The wind speed shall be shown on every display unit. When wind speed is higher than allowed to system shall give audible and visual alarm. The wind speed meter shall not limit the use of the platform.
- Starting of chassis engine from the control panel of the aerial shall be prevented unless the gear is shifted to neutral.

BODY WORK AND EQUIPMENT LOCKERS:

- The structure for the body work shall be made up of various aluminium/ stainless steel profiles properly fixed together by riveting, bolting or welding.
- The complete external panelling of the rear body shall be made from 18SWG Aluminium sheet fitted to the structural member either by gluing or riveting.
- The complete flooring of the rear deck shall be made from non-skid aluminium chequered plate of 10 SWG properly riveted or bolted to the superstructure members. For the easy access to the rear deck from ground level, there shall be sufficient nos. of recessed steps on both sides of the vehicle provided with suitable grab handles.
- Sufficient nos. of lockers shall be provided on both side of the vehicle for keeping various accessories and equipments. The locker shall be so made that load distribution on both sides is equal. All the lockers shall be provided with rolling shutters properly sealed for water and dust ingress. All the doors of the lockers shall be fitted with automatic switches activating light as soon as the door is opened and also activating the warning light in driver's cab.
- There shall be a bench type crew seat suitable for five Firemen fitted on the rear deck just behind the driver's cabin. This seat shall be properly upholstered and shall be provided with safety belts.

THE WATER SYSTEM:

- The water way shall be completely made of stainless steel/ aluminium. The nominal diameter of the water way shall be minimum 100 mm. There shall be one 2 ½ " (63 mm) male inlet (as per BS standard) with a closing eta; ball valve of pressure rate in PN 1.60 with C.I. hand wheel at each side at the rear of the vehicle from where the water line leads through the center post in the turntable up into the working cage where the water monitor is mounted. The telescopic water pipe shall be provided on the side of booms properly supported and protected with flexible pressure hose on the boom knuckles.
- The water line shall be protected from possible over pressure by means of relief valves mounted underneath of the turntable. A telescopic water pipe shall be provided on the side of the booms, which shall be made of stainless steel/ aluminium. Moving sections of this pipe shall be externally ground and chromium plated for long life. Seals between the sections are of low friction type and can be easily tightened if so required. On the other booms a fixed stainless steel pipe shall be installed and at the boom pivoting points, flexible and specially reinforced pressure hose shall be used. All hoses shall be fixed to the pipe with reliable span-lock connections.
- An additional outlet of 63 mm(as per BS standard) with female coupling and closing gunmetal ball valve of pressuring rate PN 1.60 with C.I. hand wheel shall be provided to

the water piping in the cage. There shall be drain cocks fitted in the piping to enable to drain the water from the piping after use.

- On the front side of the cage underneath, a nozzle shall be provided for water spray curtain system to protect the cage occupants from radiant heat. Control valve of water spray curtain system shall be located inside the cage.

Pressure of water in Water Line:

- The platform shall be equipped with water pressure sensors (according to customer needs)
 - * Water pressure in water inlet (> 0.0 bar)
 - * Pumping pressure of water
 - * Water pressure in Water Monitor

Water flow rate and total amount of water used:

- The water pressure shall be seen on water pump screen on every display unit actual volume of water in water line. The water volume shall be seen on water line. The water volume shall be seen on water pump screen on every display unit. The system shows the total amount of water used at one time (This counter can be reset when needed)

WATER MONITOR:

- Water monitor shall be connected to the piping system and shall be mounted outside the cage in suitable position so that the entire cage floor area can be fully utilized in extreme rescue situations.
- The monitor shall be made of light alloy and fitted with jet/fog nozzle of Akron/TFT/Rosenbauer make with maximum capacity of 3500 LPM.
- The monitor shall have Horizontal rotational movement to left and right side and also vertical up and down movement.
- There shall be gun metal ball valve type control valve of pressuring rating PN for the monitor and the monitor shall be manually operated.

INTER COMMUNICATION SYSTEM:

- There shall be fully transistorized talk back inter communication system fitted between turntable and the cage.
- The system shall be combined microphone and loudspeaker for hands free operation and shall be located in the cage. The turntable control station is also equipped with microphone, which shall be integrated in the loudspeaker with volume control.
- The microphone and the loudspeaker shall be sealed properly and it shall be protected from the ingress of water, dust and humidity.

ELECTRIC SYSTEM:

- The electrical supply shall be taken from the vehicle batteries, which are kept charged when the engine is running. Voltage of the system shall be 24 V DC and all circuits shall be provided with specific fuses depending on the current consumption of that circuit.
- When the main current is switched on, yellow flashing warning lights located at each outrigger and booms pivoting point and underneath of the working cage shall automatically be switched on.
- 2X24 Volts, 70 Watts, and spotlights with swivel mounting bracket shall be fitted at the cage railing in the front side to provide extra safety during night operation. The switch for these lights shall either be provided on the light itself or on both the control panels.

- Two rotating beacon lights of red and blue shall be provided on each side of the drivers cab roof with Amber colour lens. The switch for switching the beacons on and off with suitable signal light shall be integrated in the control panel of siren cum public address system.

SIREN AND PUBLIC ADDRESS SYSTEM:

- There shall be an electric siren unit fitted on the roof of the vehicle cabin or at a suitable place with the control unit mounted conveniently inside the diver cabin. It shall have the fast (yelp) and slow (wail) sound modes with integrated switch for rotating beacon lights.
- Command microphone, which is fitted with push-to-talk switch, allows the public address message to override the siren function. Operations are possible from driver's cabin.

BOOM LADDER:

- A telescopic rescue ladder system shall be attached on the right hand side of the booms. The design shall be such that it forms a direct and continuous rescue way with no crossover platforms or similar obstacles at the boom joints.
- The ladder shall be attached on the boom structure at several points throughout its lengths for stability even when operated in windy conditions. An extension movement of the ladder is automatically synchronized with the telescopic movement of the first boom and shall not require a separate device.
- Both control panel shall be fitted with visual indication for "Safe to climb" (rungs in alignment) position of the ladder.
- There shall be a safe access at the turntable from the ladder down to the decking for a continuous way from the maximum height down to the ground.
- The ladder assembly shall be made from aluminium alloy of sufficient strength to withstand the weight of 8 persons at a time and shall have suitable hand rails for easy climbing. The distance between two rungs shall not be more than 290mm. Each ladder rug shall have a loading of 240 Kg minimum.
- All telescopic boom ladder sections shall be with fixed railings, and no folding is required. The cage boom railings shall be folded by hydraulic cylinders, and the controlling buttons shall be in both turntable and cage control panel.

DIGITAL DISPLAY UNIT:

- The vehicle shall be provided with 3 full colour LCD displays situated at outrigger center, at turntable and the cage control panel.
- The display shall have following features:
- Type: TFT Technology, trasflective.
- Size: Min 6.5 Inches
- Configuration:400 X240 RGB pixel, full colours
- Push buttons: Multifunctional Membrane Type
- Warning Lights:LED's/Lamps
- Backlight: Suitably illuminated for night operation & shall have good visibility in broad day light.
- The display shall show the location of the fault if occurred in the system while operating the vehicle.
- The control system of the vehicle shall have self-fault finding system. If any fault occurs during the operation, the system shall find out the same and shall show the location of the defective component on the display. The system shall incorporate simple test screens to

enable testing of the working cage and the turntable control panels. The test shall also cover display unit, push buttons, joysticks and control lamps.

- For maintenance proposes the following tools shall be provided as standard supply.
- Fault finding system and fault register.
- Status screen for sensors, switches, hydraulic valves, control lamps, etc.
- Total operation and hour meters.
- Operation and hour meter since last service.
- Service counters and alarm for general maintenance.
- Software verification management
- Service laptop with compatible software relevant to the system.

FAULT FINDING SYSTEM:

- The control system of the vehicle shall have self-fault finding system. If any fault occurs during the operation, the system shall find out the same and shall show the location of the defective component on the display. The system shall incorporate simple test screens to enable testing if the working cage and the turntable control panels. The tests shall also cover display unit, push buttons, joysticks.
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- Status screen for sensors, switches, hydraulic valves, control lamps etc.
- Total operation and hour meters.
- Operation and hour meter since last service
- Service counter and alarm for general maintenance
- Software verification management
- Service laptop with compatible software relevant to the system.

PAINTING:

- Before painting all surface of steel structures shall be carefully shot blasted after which they shall be primed and then applied the coat of approved paint. The final paint thickness of the paint film shall not be less than 100 microns. All the booms shall be painted from inside.
- For every high corrosion resistance of hollow structures such as steel profiles of the working cage, outrigger beams and housing shall be treated with anti-corrosion protection preferably with "TECTYL".
- The following paint shades shall be used:
- Working cage and wheel rims : White aluminium RAL 9006
- Working cage support, boom sections, Turntable and related cylinders: White RAL 9010
- Main frame, outriggers and body work including cabin: Red RAL 3000
- Chassis frame touch-ups: Chassis original tone
- The word "ODISH FIRE SERVICE" shall be painted on both side of the vehicle at suitable place as per the instructions of the Chief Fire Officer the emblem of FIRE BRIGADE shall be painted on both side of the vehicle in natural colour.

ACCESSORIES:

- Wooden outrigger ground pads/plates with brackets -4 Nos
- Working range diagrams, at turntable & in the cage -2 Nos

- Marking of Safe working load in the cage -1 No
- Unit type marked at the boom -2 Nos
- Warning labels and instruction plates -1 Set
- Operation and maintenance manual for HP, Chassis stand by diesel engine -2 Sets
- Plug for 24 V working light at the turntable and in the working cage -1 No
- 24 Volts/70 Watt working light with universal bracket -1 Piece
- Lifting hook under the working cage, Capacity 500 Kg -1 No
- Hydraulic pressure gauge -2 Nos
- Service laptop with all accessories compatible to system -1 No
- Set of tools & accessories required for the repairs & maintenance of HP, Chassis, & other system -1 Set
- Safety belts for cage occupants -5 Nos
- Fitment for safety belt in working cage -2 Sets
- Stretcher -01 No
- Combi tools -1 Set
- Set nomex fire fighting suits (EN469) with gloves (EN659), boots (EN345), helmet (EN443), hood all certified to relevant EN (or equivalent) standards

Breathing Air System -1 Set as specified below

- A breathing air system shall be provided from turntable to working cage. At the cage there shall be a 4- Way manifold with instantaneous couplings to connect 4 breathing masks. Air cylinder to supply the breathing air shall be mounted at the turntable. The cylinder capacity shall be such that they provide minimum 7000 L of free air. Isolation valve shall be provided at suitable location so that the cylinder can be changed without interrupting the air supply. Pressure regulator as required shall also be incorporated in the system. Suitable face masks for breathing (4 nos.) shall be supplied in the cage.

INSTRUCTION MANUALS:

- Two sets of complete instruction manual for the operation and maintenance of Hydraulic platform unit (including all systems), stand by systems, chassis and itemized spare parts list shall be supplied along with electrical circuits diagrams, hydraulic circuit diagrams.
- All the manuals, circuit diagrams, literature etc shall be in English language.

DRAWINGS:

- The complete detailed drawing of Hydraulic platform duly mounted on chassis specified herein shall be submitted along with the tender.
- The working range diagram along with all the details shall also be submitted along with the tender.

STABILITY:

- The stability of the vehicles (in travelling position) when fully equipped and loaded (excluding crew member), with hydraulic platform resting on the resting stand and without extending the stabilizing jacks shall be such that it shall remain stable and shall not overturn even if the surface on which the vehicles stands has inclination on either side from the horizontal as per the standards stipulated under EN 1777. The tenderer shall be

specifically mention the angle of overturning in their offer. The manufacturer to that effect shall furnish a certificate at the time of supply.

TRAINING:

- The manufacturer's service engineer shall undertake the training for two weeks in the operation and maintenance of the Hydraulic Platform for the operational staff of the Fire Brigade Headquarters (Odisha). Cost on this account shall be included in the offer.

Offshore Training

- The training regarding the repairs, maintenance, of the chassis and Hydraulic platform including all system shall be imparted to the engineer of the Fire Brigade department for a period of one week at the factory premises of equipment manufacturer. The successful tenderer shall supply free of cost all the tools and accessories required for training. The cost on account to & fro travel, accommodation for one week shall be included for Fire Officer, Engineer & 2 Sr. Administrative officials, total 4 officers shall be included in the basic cost of vehicle.

WARRANTY:

- The original equipment manufacturer/supplier/the bidders is to furnish a warranty for the complete unit including chassis for the period of 12 months from the date of acceptance of the vehicle at the Fire Brigade Odisha (INDIA) in perfect working condition.
- The original equipment manufacturer shall also guarantee for the supply of spare parts & service for chassis and Hydraulic platform including all systems for a minimum period of 14 (Fourteen) years from the date of expiry of the warranty period of the vehicle.

SPECIAL REQUIREMENT- ESCAPE CHUTE:

- The cage should also be able to hold an Escape chute of 55 meters which shall be detachable to be installed on a building and the chute shall have adjustable length to be installed if required on a building of a lesser height. The chute shall be treated with Fire retarding material as per DIN 5510-2 and be guaranteed for 10 years shelf life and shall be installed on the base in a container easily attachable to the cage.

R.T.O. REQUIREMENTS:-

- The vehicle shall be equipped with all the accessories required for registration of the vehicle and shall conform to Motor Vehicle Act 1988 and Central Motor Vehicle Rules 1989 or any amendment incorporated from time to time .
- It is obligatory to the supplier to provide all the assistance and equipment for the inspection and testing of the vehicle at their premises.

79. TECHNICAL SPECIFICATION FOR FABRICATION AND SUPPLY OF HYDRAULIC PLATFORM-CUM AERIAL LADDER OF 42 METER HEIGHT FOR FIRE FIGHTING AND RESCUE.

GENERAL REQUIREMENT:

- The hydraulic platform shall be designed specifically for the purpose of fire fighting and rescue to enable firemen to go up over and above the other side of any obstruction. It shall comprise of main boom with Telescopic sections and Articulated Booms with Telescopic sections and cage mounted at the end of the boom and the entire unit shall be mounted on

a Turn-Table on a Heavy Duty Diesel- Engine chassis of VOLVO/MERCEDES BENZ/MAN make or suitable equivalent chassis, having five axles with two axles in the front and three axles in the rear, with fully factory built cabin and suitable capacity PTO. The vehicle Chassis shall comply BS IV (EURO IV) or latest emission norms.

- The Hydraulic Platform shall be designed as per the designed, operational stability and structural strength based on the criteria laid in EN 1777 and other norms and standards applicable for elevated raised platforms used for fire fighting and rescue operation and the certificate to that effect issued by the competent agency shall be enclosed with the tender.
- The Hydraulic Platform shall be capable to use any angle of elevation without any reduction of load capacity of the cage. It shall also rotate 360 degree at any angle of elevation as well as below ground level subject to boom remaining clear of vehicle body and or any obstruction.
- The appliance shall be compact and fast on the road and easily manoeuvrable in the crowded streets and around sharp corners. The overall dimension shall not exceed the limits specified herein.
- The working height of the Hydraulic Platform shall not be less than 42 meter from the ground and the Horizontal outreach shall not be less than 18-20 meter. The horizontal outreach of the cage of 5 meters shall be attainable at the height of 40 meter from the ground.
- A Telescopic Rescue Ladder shall be attached on the right hand side of the booms. The ladders shall be provided with sufficient width and handrails for rescue of the people at any height during rescue operation.
- The Hydraulic Platform shall be electro hydraulically controlled, permitting precise and easy operations under the most difficult conditions, with ample reserve strength and stability.
- Full safety interlocks shall be incorporated in the design so as to ensure complete safety in operations and long years of reliable and trouble free service, as far as possible the system shall be fail proof.
- The design of the platform shall allow a very large safety margin for extreme operating and climatic conditions. The safe working loads ratings shall include an allowances for the weight of water system and the reaction from the monitor jet while operation.
- The vehicle shall have a levelling system to adjust axial and transverse movement to an angle not less than 7 degree and it shall be in automatic in nature, with an easy to switch full manual over-driving capabilities.
- There shall be a full back up system for all boom movements and outrigger movement in case of failure of main system.
- The complete movement of the platform shall be computer controlled and the system shall be checked for interference sensitivity according to IEC-810-2.
- The control system of the platform shall be fully tropicalised and able to operate in the temperature range up to + 60 degree centigrade and in a dusty and humid condition without reducing the maximum operating limits.

CHASSIS:

- The chassis shall be of VOLVO/MERCEDES BENZ/MAN make or any suitable equivalent chassis, 6x4 having fully factory built cabin and suitable capacity of PTO. The vehicle chassis shall be a right hand drive and shall comply BS IV (EURO IV) & latest emission norms.
- The chassis shall be homologated from the appropriate authority in India in case not already an approved model.
- The engine shall be six cylinder, inline, diesel with direct injection, turbo charged with inter cooler.

- The engine shall develop minimum 200 HP power.
- The gearbox shall be fully automatic with suitable Power Take Off to drive the hydraulic pump.
- Rear Axle shall be Tandem Bogie type with Hub reduction and differential lock between the wheels and axles along with one Tag axle.
- Chassis frame shall be 'C' Channel section made of high strength steel with cross members.
- The steering shall be integral power steering with collapsible steering wheel and column.
- The front and rear Suspension shall be leaf spring type.
- The Brakes shall be dual circuit air brakes with parking brakes acting on rear wheels.
- Fuel Tank-Capacity shall be min 300 ltrs with lockable fuel cap.
- The chassis shall be provided with Radial tyres of suitable size as per load on axles with spare tyre.
- The chassis shall be provided with single day type cab with RED colour, made from high strength steel fully trimmed, external panels hot dip galvanized with hydraulic cab tilting mechanism. The Cab suspension shall be provided with coil spring and shock absorber. The cab shall be provided with adequate ventilation, rear view mirrors, windscreen and windows, adjustable driver seat, wiper system and along with all other standard fitments.
- The Electrical system shall be 24V, with suitable capacity batteries & Alternator for charging the batteries.
- The chassis shall be supplied with standard tool kit, hydraulic jack of suitable capacity minimum 20 ton capacity, operator & workshop manuals.
- The chassis shall be fitted with gearbox mounted, suitable capacity power Take Off Unit to drive the hydraulic pump for boom movements.
- The chassis shall comply all the provisions and enactment of Motor Vehicle Act 1988 and Central Motor Vehicle Rules 1989 and any amendment from time to time.

MAIN OPERATING DATA

Working height (minimum)	42 m
Height to working cage bottom (minimum)	40 m
Working outreach at 400 kg cage load (minimum)	18-20 m
Working reach below the ground level (minimum)	05 m
Safe cage working load without water discharge (minimum)	400-500kg
Nominal water discharge capacity of cage monitor (minimum) (with adequate supply pressure)	3800 l/min
Safe cage working load with water discharge (minimum)	300 kg
Rotation, continuous	360 ⁰
Transport height (depending on chassis)	3.5-4
Transport length (depending on chassis)	11-12 m
Transport width	2.5 m
Typical weight with chassis, G.V.W. (minimum) (Standard specification)	25-26 ton

CONSTRUCTION:

- The appliance shall be robust in construction; materials used in construction shall be carefully selected for lightness and durability. Use of timber shall be restricted in bodywork and use of rubber shall be avoided as far as possible. Ferrous metal parts shall be treated for anti-corrosion by a method other than electro-plating.

BOOMS:

- The vehicle shall perform the following functions/ operations
 - Elevation
 - Depression
 - Extension & housing of telescopic sections
 - Rotation 360 degree in either direction
- All the operations shall be electro-hydraulically operated with the help of hydraulic cylinders, wire ropes, chain etc. The system shall be purpose built to provide smooth takeoff, variable speed range and smooth slowdown, based on the criteria laid down under EN 1777 or any other relevant standards applicable for these kind of vehicles.
- There shall be two booms, the first boom with telescopic extension providing direct movement and the other articulated booms with telescopic extension and vertical movement of approx. 180 degrees. The booms shall provide an up-and-over capability of approx.10.0meter throughout its vertical movement.
- The boom shall be box/trapezoidal section type, welded construction; welding method shall be of latest technology to provide high durability and extreme accuracy. For high strength and minimum flexing of the boom section only high tensile strength steels shall be used for load bearing structure. Welding quality certificate of ISO 3834-2 for load bearing steel structures for mobile hydraulic aerial appliances shall be submitted.
- The main boom elevation and lowering shall be controlled by two hydraulic cylinders that both have their separate devices and can alone carry the entire load in case of failure of any one of the cylinders.
- All telescopic sections of the first boom shall move in a synchronized way and there shall not be any intermediate jerks during extension/ retraction. Automatic slowdown mechanism at the beginning of the movement as well as end of the movement shall be provided to all boom movements. All the moving sections shall be fitted with adjustable guides/ rollers to provide smooth and accurate movement. Various maintenance points shall be located well at hand either outside the boom or behind easily removable covers.

HYDRAULIC CYLINDER:

- The hydraulic cylinders shall be double acting, fitted with lock valves so as to prevent booms, working cage from lowering or the outriggers from retracting in case of pipe or hose failure.
- The cylinders shall be provided with automatic dampers to prevent the pressure shocks and shall dampen the movement when a mechanical stop is reached.
- Retraction of the outriggers shall be automatically prevented as soon as the booms have been lifted up from their transport position by way of electrical OR Hydraulic interlock system.
- The main boom elevation and lowering has to be controlled by two hydraulic cylinders that both have their separate safety devices and both can alone carry the entire load in case of failure of any one of the cylinders.
- The piston rods of the jack cylinders have to be fully enclosed within rectangular steel profile in order to protect piston from damage caused by any external impacts.
- Lifting of the booms from the transport position shall be prevented before the outriggers are in support position and there shall be a limiting circuit to prevent damage to the Drivers cabin by the first boom when not clear of the cabin.
- All movements shall be automatically limited in their extreme position and the working cage shall be prevented from working outside of the permitted working range in any position.
- An emergency stop switch shall be provided on both control panels, which shall switch off the hydraulic pressure of all movements and shall stop the vehicle engine. The unit shall be supplied with a manual Bleed Down System and Emergency Hydraulic Backup System.

TURN-TABLE:

- The turntable shall be fully integrated steel structure containing center post, slip rings, water line, etc duly fastened to the main frame by means of slewing ring.
- The rotation for the turntable shall be controlled by hydraulic motor with brakes through oil immersed reduction unit.
- The base control station shall be attached to the turntable so as to rotate with it and be accessible in all positions of the turntable.
- The hydraulic distributor (center post) shall be mounted in the center of the turntable at an accessible position and shall carry the hydraulic pressure and return lines, electrical supply lines & water line allowing continuous rotation in either direction.
- The fasteners retaining turntable to the rotation mechanism shall be of proper grade and shall be torque properly.
- The rotation gear box fastener shall be of proper grade and torque with proper backlash.
- There shall be provision for the manual rotation of turntable in case of failure of hydraulic system.
- Pins securing the hydraulic cylinders to boom and turntable shall be properly installed and secured.
- The hydraulic hoses, tubing and connections provided in the turntable shall be free from kinks, chaffing or leaks.

MAIN FRAME:

- The main frame shall be welded, box section type made from high tensile steel plates and shall absorb all the stress generated by platform and outriggers.
- The front mounting bolts of the mainframe shall be spring loaded to allow the chassis frame to flex when the outriggers are fully down to avoid any stress concentration on the chassis frame.
- The main frame shall incorporate hydraulic oil tank, outrigger beam housing, and it shall be bolted to the chassis frame and the slew ring support plate shall be welded to the top of the main frame and shall be precision machine.

STABILISING / JACKING SYSTEM :

- The jacking system shall consist of hydraulic operated four outriggers mounted in their housings in the main frame. Each housing shall be fitted with adjustable guides to provide smooth and accurate movement of the outrigger beam. The outrigger piston rods shall be completely protected by closed steel profile.
- The jack shall be H-type construction, each outrigger shall have two separate hydraulic cylinders, the first of which pushes the horizontal outrigger beam out and the second shall push the vertical jack down.
- The jack shall be provided with ground pressure sensors, which shall be correctly actuated before the booms are separated to ensure proper stabilization.
- Each vertical jack shall be provided with self-aligning footplate to spread the load evenly and allow the operation on uneven ground.
- The jacking shall be able to level the vehicle up to 7 degree sideways and fore and aft with automatic levelling system. There shall be manual override system.
- The automatic jacking system shall be controlled preferable by hand held remote control box provided with back lit push buttons for allowing operations.
- Left side outrigger beam out.
- Right side outrigger beam out.
- Automatic levelling.

- Outrigger back to transport position.
- The jacking system shall have following jacking configurations.
- Outrigger beams fully extended on both sides- Rotation continuous 360 degree with max. Outreach and full SWL in cage.
- Outrigger beam fully extended at various-Rotation 360degree as per available outreach on width each side depending upon out rigger width
- All the jack movements shall be infinitely variable within a jacking width of 5.50 mtrs.
- The jacking system shall allow operating each jack individually and the jack projection shall be recognized by the controlling system and the maximum outreach shall automatically be calculated as per the jack width.
- The jacks shall be controlled individually or in pair with lever /joystick and the control panel shall be situated in such a position that, the operator will have clear look to the right and left hand side while extending the jacks. The control panel shall be located at the rear side of the vehicle.
- Yellow Flashing warning lights shall be provided at the outer most point of the jacks to identify the position of the jacks during night operation.
- Four wooden spreader plates shall be provided for the use, when the vehicle is to be operated on soft ground.
- The vehicle shall be provided with Digital inclinometer which will measure both fore, aft and sideways inclination of the vehicle up to min. 7 degree.
- The jacking system shall also have automatic “ONE BUTTON” Variable jacking system with two independent automatically operating and self-controlling safety system to prevent an unsafe configuration.
- The stabilizing system shall also incorporate axle-locking mechanism if required.
- The jacking/ stabilizing system controlling box shall be located in such a way that it allows operator to see outriggers at all times preferable remote control box with wonder lead containing all the control levers, switches, and indication lamps for the operation of stabilization system.
- The available outreach to all directions must be shown on the outrigger display, before the outriggers are extended. This is to save time in an emergency situation, giving the operator the possibility to see the available outreach before setting up the machine.
- The transversal and longitudinal angles of the chassis have to be shown on the display numerically before the outriggers are extended giving the operator the possibility to see whether the levelling capacity of the machine is sufficient without adding extra packing underneath the outriggers.
- in addition, the following controls shall be provided on jack control panel:
 - Starting of chassis engine.
 - Stopping of chassis engine.
 - Activating the outrigger control.
 - Outrigger and outreach display with faultfinding system.
 - Operating hour meter in the display.
 - Switch for the battery driven back up for the hydraulic system.
 - Visual indications for levelling of the vehicle (fore, aft & sideways)
 - Emergency stop.
 - Controls for the automatic jacking
 - Engine start/ stop button for diesel engine of standby system.
- The locker containing outrigger controls shall be fitted with an automatically operating door switch and a light for night operation.

ELECTRONIC SAFETY AND OUTREACH SYSTEM:

- The computer-controlled system shall allow outriggers to be positioned and to select the working cage load according to working situation. The system shall be capable to select automatically the maximum allowed outreach to front, rear, right and left side. Based on calculation and parameters saved in the system to guarantee exactly the same outreach regardless of the external influences like wind speed and direction, temperature, friction of the cylinders, etc.
- The display units of the system shall show maximum possible outreach and position of the working cage in real time along with other details.
- The electronic system shall be provided according to the valid standards and directives of European Union. The system shall be EMC tested and certified by third party and EMC certificate must be submitted with offer.

WORKING CAGE:

The working cage shall be fixed to the booms pivoting point about cage floor level to provide highest possible degree of versatility. The cage shall be made of tubular steel profile, welded together and painted with special paint with high durability. The min. dimension of the working cage are 1, 15 m (length) x 2,25m(width)x1,1m(height) and it shall be fitted with two inward opening doors located at the rear right side and left side to enable safe access to the cage in travelling position. The top railing shall be part of the left side cage door so entering into the cage without bending oneself shall be possible. The rescue entrance shall be located in the front and top railing can be moved to the side for safe and easy access. There shall be two fitments for safety belts in the working cage. Safe working load shall be 500 kg when no water is discharged and the cage telescope is in retracted position.

It should be possible that the cage load can be changed from the display units at the outrigger center, at the turntable or in the working cage. The chosen cage load should be able to be seen on the display by clear symbols and also numerically in selected format. The current cage load shall be shown by graphical bar.

If the selection is made at the outrigger center, the system shall show automatically maximum outreach to all directions with the selected cage load and outrigger positions. If the cage load shall be changed at turntable or in working cage, the system shall show maximum outreach to all directions and additionally outreach diagram in the present direction of the booms.

WORKING CAGE LEVELLING

The working cage shall be kept horizontally levelled in any position of the booms. The levelling system shall be controlled by an automatic hydraulic device with fully automatic and independent safety circuit in case of an uncontrolled levelling failure. There shall be a master switch for the automatic levelling system, so that it can be isolated and the manually controlled system activated.

WORKING CAGE SLEWING

The working cage should turn 45 degree to each side from its centre position to provide safety and comfort ability in rescue operations. The movement shall be powered by a hydraulic cylinder with controls in the working cage and at the turntable control panels.

The center position of the cage shall be indicated by a visual indication at both control panels.

STANDARD FEATURES OF THE SYSTEM:

Ground pressure alarm

When one outrigger has not enough ground pressure, the system shall give an audible and a visual alarm. If two outriggers lose ground contact, unsafe boom movements shall be stopped.

Cab Protection

The cab of the truck shall be protected to avoid damage by the booms or working cage. Working in front of the truck close to the cab shall be also possible. When arriving to the cab protection area, the movements of the booms shall be slowed down and stopped softly. Leaving the area shall be done by opposite movements. Cab protection can be overridden by push button.

Automatic drive of booms to transport position

The booms shall be lowered back to transport position fully automatically by pushing a single push button.

Working cage automatically to middle position

Working cage shall be turned automatically to centre position.

Approaching speed

Lower speeds of the boom movements for training and general use for persons not very familiar with the platform or when reaching the building very accurately.

Automatic ladder rung alignment

Align the rungs of the ladder sections automatically in the same line.

Personal profile

The platform operator shall be able to generate his/her own boom movement speed and ramp time profile in the system. Possibility to enter own name for easier selection of own profile.

Zero position of joysticks

All joysticks must be in zero position before activation of RPM for boom movements.

Automatic switch off for the outrigger pressure

Push button version of outrigger controls:

Outrigger pressure shall be automatically switched off if dead man pedal of working cage or turntable shall be pushed. Outrigger pressure shall be also automatically switched off after certain time delay.

Service time reminder

The system shall give an alarm when closing 250h(or every third month) of 1000h(yearly) service time. The service time counter shall be able to reset when maintenance is carried out.

Pressure and temperature of hydraulic oil

Platform shall be equipped with electrical temperature and pressure sensors of the hydraulic oil. The temperature and pressure shall be shown in every display unit.

Tilt alarm

If chassis is tilted or the unit is levelled incorrectly, the system shall give an audible and a visual alarm in every display unit. The tilt alarm angle shall be adjustable.

Language and measure units of screens

The system shall be based on clear and easy-to-understand symbols. If texts are used on master screens, the language shall be English.

All measure units of master screens can be changed to locally used format by operator.

Auto jacking

Automatic levelling system shall be easy and fast way to make platform ready for operation. The system shall be fully automated and enable levelling within less than 30 seconds. The system shall perform very accurate levelling and shall have safety circuits to assure that levelling shall be proper and platform shall be ready for safe operation.

This system shall be controlled by hand held remote control device. The device shall be equipped with following functions (back-lighted push buttons):

1. **Left side outrigger beams out**
2. **Right side outrigger beams out**
3. **Automatic levelling**
4. **Outriggers back to transport position**

Pressure of water in water line

The platform shall be equipped with water pressure sensors(according to customer's need):

- **Water pressure in water inlet (>0.0 bar)**
- **Pumping pressure of water**
- **Water pressure in water monitor**

The water pressure shall be seen on water pump screen on every display unit.

Water flow rate and total amount of water used

Actual volume of water in water line. The water volume shall be seen on water pump screen on every display unit. The system shows also the total amount of water used at one time(this counter can be reset when needed).

Wind speed meter

A wind speed sensor shall be fixed in working cage and can be at place also during transportation.

Wind speed shall be seen on every display unit. When wind speed shall be higher than allowed the system shall give audible and visible alarm. The wind speed meter shall not limit the use of the platform.

Indication of low fuel level

Depending on the chassis used the system shall give an alarm to the operator when the fuel tank shall be getting empty.

Pressure oil filter Service Indicator

If any of pressure oil filters needs unscheduled service, a visual indication shall be shown on every display unit.

Hydraulic tank low oil level alarm

System shall give an alarm to the operator when hydraulic oil level shall be too low in the oil tank.

Temperature of cage floor

Temperature of working cage floor can be seen on every display unit.

Laser Rangefinder

The laser range finder shall be a distance measuring device based on laser technology. It shall be used to quickly calculate the position of the outriggers needed to reach a particular target, based on a given cage load. It consists of a small video camera sized laser device for measuring the distance between the target and the aerial platform and a small and easy to use hand-held computer for displaying results and calculating additional information.

Radio(wireless) Remote Control

The radio remote control shall perform the same standard main functions as the stationary control center including all boom movements, engine start/stop, rpm for boom movements, horn and work lights, emergency stop, all water monitor controls etc. It shall weight about 2 kg including battery. Range shall be about 100 m with standard antenna and 200 m with optional antenna.

HYDRAULIC SYSTEM

- The hydraulic power shall be provided by a reliable and adequate capacity variable displacement axial piston pump, which shall be driven by the vehicle power take off.
- When no operation of the aerial device is activated, the pump shall rotate on minimum flow and minimum pressure. When one of the movements is operated the control valve automatically increases the pressure to a preset constant level and the oil flow to the amount that is needed for the movements activated. The flow of the pump shall be sufficient to give the supply of Hydraulic oil at required pressure to all the movements activated simultaneously at full stroke without affecting the preset speed.
- There shall be a provision of instant couplings for attachment of manometer in each pressure line for checking pressure of each circuit.

- The filtration system of the hydraulic oil shall consist of suction strainer in the suction line, pressure filters in each pressure circuit, return filter in return line and air filter on the reservoir. All the pressure filters shall have blockage indicator.
- All hydraulic cylinders shall be double acting with hard chrome plated piston rods and shall be fastened by means of self-aligning ball bearings to prevent lateral forces from damaging the seals or piston rods of the cylinders.
- Hydraulic oil tank shall be integrated or fitted into the main frame and shall have a proper heat dissipation system. The tank shall be fitted with oil level gauge, temperature gauge and suction connections with closing valves for easy maintenance and draining outlet with closing valve.

BACK-UP FOR THE HYDRAULIC SYSTEM:

- There shall be a separate single cylinder diesel engine(silent pack) mounted at suitable place, preferably in one of the lockers driving the hydraulic pump, which will provide independent means of hydraulic power in case of failure of main engine of vehicle. The Diesel engine shall have sufficient power to drive all the movements of the booms but at a reduced speed. The engine shall be able to start from all control panels.
- In addition to the above, there shall be battery driven Hydraulic pump, which provides independent means of hydraulic power in case of failure of main engine and standby engine of vehicle. The battery pump can be operated from all control panels.

CONTROLS AND SAFETY:

- The electrical supply needed for control system shall be taken from the vehicle battery which shall be charged when the engine is running.
- When the vehicle is in operation yellow flashing warning lights with siren mounted on the outriggers shall automatically remain on.
- The engine starting and stopping switch shall be provided on all control panels and the engine speed shall be increased to the preset lever as soon as any one of the control lever is operated.
- All boom and rotation movements shall be controlled electro-hydraulically by means of proportional valves. The proportional valve shall not be sensitive to changes of ambient or oil temperature and shall provide smooth, safe and very accurate movements even in most severe operating conditions.
- The speed of the first boom for lowering and extension shall be automatically reduced at maximum outreach. The first boom lifting speed shall be reduced before the maximum.
- All control movements can be performed by the control system from both control panels and the outreach can be selected by the positioning the outriggers. The variable system shall consist two displays, the graphical display and real time information about the outreach and the cage position and also to show possible movements according to cage position by animated arrows. In the text display there shall be main texts for:
 - Warnings
 - Emergency situations
 - Help manual
 - Fault finding system
 - Single lamps shall be provided for following functions:
 - For the outriggers, in transport position in driver's cab
 - For the outriggers working position on all control panels.
 - For the transport position of the booms in driver's cab
- For the middle position of the rotation on the turntable and cage control panel.
- For the exceeding of the safe working load in the cage on the turntable and cage control panels.

- An overload warning shall be fitted to give an audible and visual warning in case of exceeding the safe working load at all control stations at the same time boom movements shall be slow down and outward boom movements shall be stopped.

TURNTABLE AND CAGE CONTROL PANELS:

- The turntable control panel incorporating all control levers and safety system indicators shall be fitted with a rotatable arm at the side of the turntable. The control panel shall be placed and locked conveniently in its operating position to provide the operator with an excellent view over to different indications of the safety systems.
- The control panel can be rotated and locked in a position enabling direct access from the decking of the vehicle into control system.
- The control station shall be fitted with convenient adjustable seat to provide comfort even in case of prolonged operation. The platform underneath the control position shall be covered by non-slip aluminium plate.
- The control panels at turntable and cage shall be exactly alike which will reduce the risk of confusion amongst operators under stress or even panic. Both the control panels shall be provided with weather protection covers/ box.
- The turntable control panel shall have change over switch to select the control station from which the operation is performed.
- Both control panels shall be fitted with following warning, indication and control devices and shall be marked by clear symbols for easy recognition.
- Visual and audible indication for exceeding safe working load.
- Visual warning for activation of working cage collision guard system.
- Visual indication for ground pressure of the outriggers.
- Visual indication for the rescue ladder "Rungs in alignment".
- Visual indication for the center position of the booms.
- Visual indication for the center position of the working cage.
- Starting and stopping of chassis engine.
- Switch for the operating battery driven pump for hydraulic back-up system.
- Starting and stopping switch for standby diesel engine for hydraulic back-up system.
- Joystick control levers for each movement.
- Push buttons/ joystick for cage slewing.
- Emergency stop button.
- Overriding of the automatic working cage leveling system.
- Manual operation for the working cage leveling system.
- Switch for activating the bled down system near the turntable control panel.

CONTROLS AND INDICATORS IN DRIVER'S CAB:

- The following control and indicators shall be provided in driver's cabin:
- Visual warning for the main current being switched on.
- Visual warning for outriggers in travelling position.
- Visual warning for any of the equipment lockers being open.
- Visual warning for the booms not being fully in transportation position.
- Switch with visual indication for rotating beacons.
- Switch with visual indication for siren unit.
- Microphone for the public address system.

SAFETY DEVICES:

- All the hydraulic cylinders shall be fitted with lock valves directly integrated into the cylinder structure to prevent the booms, the working cage or the outriggers from retracting in case of a pipe or hose failure.
- Retracting of any of the outriggers shall be automatically prevented as soon as the booms have been lifted from their travelling position. Similarly lifting of the booms from the travelling position shall be prevented until the outriggers have reached the ground pressure.
- The levelling system of the vehicle shall give audible warning at cage & ground level if permitted inclination increases due to changing ground conditions.
- All boom movements shall be limited at their most extreme positions making it impossible for the operator to reach an unsafe configuration by normal means of operation. The movements having direct influence on the stability of the vehicle shall be fitted with two separate limiting circuits, the first one retarding and stopping that particular movement, and the second one deactivating the whole electric and hydraulic system shall the first circuit fail.
- All major movements such as lifting of the first boom to its maximum elevation, and extending the telescopic movement or lowering the first boom at the maximum outreach shall be fitted with slow-down devices to provide smooth deceleration, and starting of the movement shall also be retarded for smooth acceleration.
- Inadvertent damaging of the driver's cab by the main/ first boom shall be prevented by a system preventing lowering of the booms and rotation movement when the booms are near the driver's cab.
- An overload warning system shall be fitted to give an audible and visual warning in case of exceeding the safe working load in the cage and at the same time boom movements are slowed down and outward boom movements shall be stopped.
- A cage collision guard shall be provided and shall be integrated to cage load sensor to provide additional safety when operating in darkness or in dense smoke. The system shall stop all movements.
- An emergency stop button shall be provided on both control panels to provide immediate and complete "freezing" of all systems in case of an unexpected emergency.
- All the control levers shall be "Dead Man" type and shall automatically come to zero position when released.
- There shall be a "bleed down" system, which can be operated from turntable to lower the booms and bring the working cage down onto the ground even if no hydraulic pressure and electric is available with rotation mechanism.
- When one of the outriggers has not enough ground pressure, the system shall give an audible and a visual alarm. If two outriggers loose round contact, unsafe boom movements shall be stopped.
- The cab of the vehicle shall be protected from damage by the booms or working cage. Working in front of the vehicle close to the cab shall be possible. When in the cab protection area, the movements of the booms shall slow down and stop smoothly however; the opposite movement of the booms and the cage shall be possible to get out of the cabin protection area. Cab protection system/ mechanism shall be manually overridden by push button.
- The safety system shall bring the working cage automatically to centre position while lowering the boom in transport position.
- The vehicle shall be equipped with electrical sensors for temperature and pressure of the hydraulic oil. The temperature and pressure shall be shown on every display unit.
- The vehicle shall be fitted with tilt alarm to give audible and visual alarm on display if the vehicle is levelled incorrectly. The tilt alarm angle shall be adjustable.
- The system of the vehicle shall be based on clear and easy to understand symbols. Is texts are used on master screens; the operator shall be able to change the

language in use. All measure units of master screens shall be changeable to locally used format by operator.

- The wind speed sensor shall be fixed in the working cage. The wind speed shall be shown on every display unit. When wind speed is higher than allowed to system shall give audible and visual alarm. The wind speed meter shall not limit the use of the platform.
- Starting of chassis engine from the control panel of the aerial shall be prevented unless the gear is shifted to neutral.

BODY WORK AND EQUIPMENT LOCKERS:

- The structure for the body work shall be made up of various aluminium/ stainless steel profiles properly fixed together by riveting, bolting or welding.
- The complete external panelling of the rear body shall be made from 18SWG Aluminium sheet fitted to the structural member either by gluing or riveting.
- The complete flooring of the rear deck shall be made from non-skid aluminium chequered plate of 10 SWG properly riveted or bolted to the superstructure members. For the easy access to the rear deck from ground level, there shall be sufficient nos. of recessed steps on both sides of the vehicle provided with suitable grab handles.
- Sufficient nos. of lockers shall be provided on both side of the vehicle for keeping various accessories and equipments. The locker shall be so made that load distribution on both sides is equal. All the lockers shall be provided with rolling shutters properly sealed for water and dust ingress. All the doors of the lockers shall be fitted with automatic switches activating light as soon as the door is opened and also activating the warning light in driver's cab.
- There shall be a bench type crew seat suitable for five Firemen fitted on the rear deck just behind the driver's cabin. This seat shall be properly upholstered and shall be provided with safety belts.

THE WATER SYSTEM:

- The water way shall be completely made of stainless steel/ aluminium. The nominal diameter of the water way shall be minimum 100 mm. There shall be one 2 ½ " (63 mm) male inlet (as per BS standard) with a closing eta; ball valve of pressure rate in PN 1.60 with C.I. hand wheel at each side at the rear of the vehicle from where the water line leads through the center post in the turntable up into the working cage where the water monitor is mounted. The telescopic water pipe shall be provided on the side of booms properly supported and protected with flexible pressure hose on the boom knuckles.
- The water line shall be protected from possible over pressure by means of relief valves mounted underneath of the turntable. A telescopic water pipe shall be provided on the side of the booms, which shall be made of stainless steel/ aluminium. Moving sections of this pipe shall be externally ground and chromium plated for long life. Seals between the sections are of low friction type and can be easily tightened if so required. On the other booms a fixed stainless steel pipe shall be installed and at the boom pivoting points, flexible and specially reinforced pressure hose shall be used. All hoses shall be fixed to the pipe with reliable span-lock connections.
- An additional outlet of 63 mm(as per BS standard) with female coupling and closing gunmetal ball valve of pressuring rate PN 1.60 with C.I. hand wheel shall be provided to the water piping in the cage. There shall be drain cocks fitted in the piping to enable to drain the water from the piping after use.

- On the front side of the cage underneath, a nozzle shall be provided for water spray curtain system to protect the cage occupants from radiant heat. Control valve of water spray curtain system shall be located inside the cage.

Pressure of water in Water Line:

- The platform shall be equipped with water pressure sensors (according to customer needs)
 - * Water pressure in water inlet (> 0.0 bar)
 - * Pumping pressure of water
 - * Water pressure in Water Monitor

Water flow rate and total amount of water used:

- The water pressure shall be seen on water pump screen on every display unit actual volume of water in water line. The water volume shall be seen on water line. The water volume shall be seen on water pump screen on every display unit. The system shows the total amount of water used at one time (This counter can be reset when needed)

WATER MONITOR:

- Water monitor shall be connected to the piping system and shall be mounted outside the cage in suitable position so that the entire cage floor area can be fully utilized in extreme rescue situations.
- The monitor shall be made of light alloy and fitted with jet/fog nozzle of Akron/TFT/Rosenbauer make with maximum capacity of 3500 LPM.
- The monitor shall have Horizontal rotational movement to left and right side and also vertical up and down movement.
- There shall be gun metal ball valve type control valve of pressuring rating PN for the monitor and the monitor shall be manually operated.

INTER COMMUNICATION SYSTEM:

- There shall be fully transistorized talk back inter communication system fitted between turntable and the cage.
- The system shall be combined microphone and loudspeaker for hands free operation and shall be located in the cage. The turntable control station is also equipped with microphone, which shall be integrated in the loudspeaker with volume control.
- The microphone and the loudspeaker shall be sealed properly and it shall be protected from the ingress of water, dust and humidity.

ELECTRIC SYSTEM:

- The electrical supply shall be taken from the vehicle batteries, which are kept charged when the engine is running. Voltage of the system shall be 24 V DC and all circuits shall be provided with specific fuses depending on the current consumption of that circuit.
- When the main current is switched on, yellow flashing warning lights located at each outrigger and booms pivoting point and underneath of the working cage shall automatically be switched on.
- 2X24 Volts, 70 Watts, and spotlights with swivel mounting bracket shall be fitted at the cage railing in the front side to provide extra safety during night operation. The switch for these lights shall either be provided on the light itself or on both the control panels.
- Two rotating beacon lights of red and blue shall be provided on each side of the drivers cab roof with Amber colour lens. The switch for switching the beacons on and off with suitable signal light shall be integrated in the control panel of siren cum public address system.

SIREN AND PUBLIC ADDRESS SYSTEM:

- There shall be an electric siren unit fitted on the roof of the vehicle cabin or at a suitable place with the control unit mounted conveniently inside the diver cabin. It shall have the fast (yelp) and slow (wail) sound modes with integrated switch for rotating beacon lights.
- Command microphone, which is fitted with push-to-talk switch, allows the public address message to override the siren function. Operations is possible from drivers cabin.

BOOM LADDER:

- A telescopic rescue ladder system shall be attached on the right hand side of the booms. The design shall be such that it forms a direct and continuous rescue way with no crossover platforms or similar obstacles at the boom joints.
- The ladder shall be attached on the boom structure at several points throughout its lengths for stability even when operated in windy conditions. Extension movements of the ladder is automatically synchronized with the telescopic movement of the first boom and shall not require a separate device.
- Both control panel shall be fitted with visual indication for "Safe to climb" (rungs in alignment) position of the ladder.
- There shall be a safe access at the turntable from the ladder down to the decking for a continuous way from the maximum height down to the ground.
- The ladder assembly shall be made from aluminum alloy of sufficient strength to withstand the weight of 8 persons at a time and shall have suitable hand rails for easy climbing. The distance between two rungs shall not be more than 290mm. Each ladder rung shall have a loading of 240 Kg minimum.
- All telescopic boom ladder sections shall be with fixed railings, and no folding is required. The cage boom railings shall be folded by hydraulic cylinders, and the controlling buttons shall be in both turntable and cage control panel.

DIGITAL DISPLAY UNIT:

- The vehicle shall be provided with 3 full colour LCD displays situated at outrigger center, at turntable and the cage control panel.
- The display shall have following features:
- Type: TFT Technology, transreflective.
- Size: Min 6.5 Inches
- Configuration: 400 X 240 RGB pixel, full colours
- Push buttons: Multifunctional Membrane Type
- Warning Lights: LED's/Lamps
- Backlight: Suitably illuminated for night operation & shall have good visibility in broad day light.
- The display shall show the location of the fault if occurred in the system while operating the vehicle.
- The control system of the vehicle shall have self-fault finding system. If any fault occurs during the operation, the system shall find out the same and shall show the location of the defective component on the display. The system shall incorporate simple test screens to enable testing of the working cage and the turntable control panels. The test shall also cover display unit, push buttons, joysticks and control lamps.
- For maintenance purposes the following tools shall be provided as standard supply.

- Fault finding system and fault register.
- Status screen for sensors, switches, hydraulic valves, control lamps, etc.
- Total operation and hour meters.
- Operation and hour meter since last service.
- Service counters and alarm for general maintenance.
- Software verification management
- Service laptop with compatible software relevant to the system.

FAULT FINDING SYSTEM:

- The control system of the vehicle shall have self-fault finding system. If any fault occurs during the operation, the system shall find out the same and shall show the location of the defective component on the display. The system shall incorporate simple test screens to enable testing if the working cage and the turntable control panels. The tests shall also cover display unit, push buttons, joysticks.
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- Operation and hour meter since last service
- Service counter and alarm for general maintenance
- Software verification management
- Service laptop with compatible software relevant to the system.

PAINTING:

- Before painting all surface of steel structures shall be carefully shot blasted after which they shall be primed and then applied the coat of approved paint. The final paint thickness of the paint film shall not be less than 100 microns. All the booms shall be painted from inside.
- For every high corrosion resistance of hollow structures such as steel profiles of the working cage, outrigger beams and housing shall be treated with anti-corrosion protection preferably with "TECTYL".
- The following paint shades shall be used:
- Working cage and wheel rims : White aluminium RAL 9006
- Working cage support, boom sections, Turntable and related cylinders: White RAL 9010
- Main frame, outriggers and body work including cabin: Red RAL 3000
- Chassis frame touch-ups: Chassis original tone
- The word "ODISH FIRE SERVICE" shall be painted on both side of the vehicle at suitable place as per the instructions of the Chief Fire Officer the emblem of FIRE BRIGADE shall be painted on both side of the vehicle in natural colour.

ACCESSORIES:

- Wooden outrigger ground pads/plates with brackets -4 Nos
- Working range diagrams, at turntable & in the cage -2 Nos
- Marking of Safe working load in the cage -1 No
- Unit type marked at the boom -2 Nos
- Warning labels and instruction plates -1 Set

- Operation and maintenance manual for HP, Chassis stand by diesel engine -2 Sets
- Plug for 24 V working light at the turntable and in the working cage -1 No
- 24 Volts/70 Watt working light with universal bracket -1 Piece
- Lifting hook under the working cage, Capacity 500 Kg -1 No
- Hydraulic pressure gauge -2 Nos
- Service laptop with all accessories compatible to system -1 No
- Set of tools & accessories required for the repairs & maintenance of HP, Chassis, & other system -1 Set
- Safety belts for cage occupants -5 Nos
- Fitment for safety belt in working cage -2 Sets
- Stretcher -01 No
- Combi tools -1 Set
- 4 Set nomex fire fighting suits (EN469) with gloves (EN659), boots (EN345), helmet (EN443), hood all certified to relevant EN (or equivalent) standards
- Breathing Air System -1 Set as specified below
- A breathing air system shall be provided from turntable to working cage. At the cage there shall be a 4- Way manifold with instantaneous couplings to connect 4 breathing masks. Air cylinder to supply the breathing air shall be mounted at the turntable. The cylinder capacity shall be such that they provide minimum 7000 L of free air. Isolation valve shall be provided at suitable location so that the cylinder can be changed without interrupting the air supply. Pressure regulator as required shall also be incorporated in the system. Suitable face masks for breathing (4 nos.) shall be supplied in the cage.

INSTRUCTION MANUALS:

- Two sets of complete instruction manual for the operation and maintenance of Hydraulic platform unit (including all systems), stand by systems, chassis and itemized spare parts list shall be supplied along with electrical circuits diagrams, hydraulic circuit diagrams.
- All the manuals, circuit diagrams, literature etc shall be in English language.

DRAWINGS:

- The complete detailed drawing of Hydraulic platform duly mounted on chassis specified herein shall be submitted along with the tender.
- The working range diagram along with all the details shall also be submitted along with the tender.

STABILITY:

- The stability of the vehicles (in travelling position) when fully equipped and loaded (excluding crew member), with hydraulic platform resting on the resting stand and without extending the stabilizing jacks shall be such that it shall remain stable and shall not overturn even if the surface on which the vehicles stands has inclination on either side from the horizontal as per the standards stipulated under EN 1777. The tenderer shall specifically mention the angle of overturning in their offer. The manufacturer to that effect shall furnish a certificate at the time of supply.

TRAINING:

- The manufacturer's service engineer shall undertake the training for two weeks in the operation and maintenance of the Hydraulic Platform for the operational staff of the Fire Brigade Headquarters (Odisha). Cost on this account shall be included in the offer.

Offshore Training

- The training regarding the repairs, maintenance, of the chassis and Hydraulic platform including all system shall be imparted to the engineer of the Fire Brigade department for a period of one week at the factory premises of equipment manufacturer. The successful tenderer shall supply free of cost all the tools and accessories required for training. The cost on account to & fro travel, accommodation for one week shall be included for Fire Officer, Engineer & 2 Sr. Administrative officials, total 4 officers shall be included in the basic cost of vehicle.

WARRANTY:

- The original equipment manufacturer/supplier/the bidders is to furnish a warranty for the complete unit including chassis for the period of 12 months from the date of acceptance of the vehicle at the Fire Brigade Odisha (INDIA) in perfect working condition.
- The original equipment manufacturer shall also guarantee for the supply of spare parts & service for chassis and Hydraulic platform including all systems for a minimum period of 14 (Fourteen) years from the date of expiry of the warranty period of the vehicle.

SPECIAL REQUIREMENT- ESCAPE CHUTE:

- The cage should also be able to hold an Escape chute of 55 meters which shall be detachable to be installed on a building and the chute shall have adjustable length to be installed if required on a building of a lesser height. The chute shall be treated with Fire retarding material as per DIN 5510-2 and be guaranteed for 10 years shelf life and shall be installed on the base in a container easily attachable to the cage.

R.T.O. REQUIREMENTS:-

The vehicle shall be equipped with all the accessories required for registration of the vehicle and shall conform to Motor Vehicle Act 1988 and Central Motor Vehicle Rules 1989 or any amendment incorporated from time to time.

It is obligatory to the supplier to provide all the assistance and equipment for the inspection and testing of the vehicle at their premises.

9	Repair kit for OBM	100	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0
10	Mini Fire Extinguisher for Flammable liquid	50	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	0
11	Blower for Inflation & deflation	100	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0
12	OBM Carrier	100	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0
13	SCUBA (Diving Equipment)sets with communication, BCD & accessories for Underwater Operations	56	3	3	3	3	3	3	3	3	3	3	3	3	2	3	2	3	3	3	2	2	15
14	HP Compressor For SCBA & SCUBA	28	2	1	2	2	2	2	2	1	2	1	2	1	1	1	1	1	1	1	1	1	10
15	Collapsed Structure Search and Rescue (CSSR) Tools, Equipment and accessories	35	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2	2	2	2	0
16	Concrete Cutter	35	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2	2	2	2	3
17	Hydraulic Power Shore Unit	35	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2	2	2	2	0
18	Self -Contained Breathing Apparatus	33	2	2	2	2	2	2	2	2	2	2			1		2	2	2	2	2	2	0
19	Branch Cutting Saw (Electrical)	93	5	5	5	5	5	5	5	5	5	5	4	4	4	4	3	5	5	5	5	4	0
20	Mountaineering Equipment	95	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	4	3	0
21	Telescopic Aluminum Ladder (40 Feet)	80	5	5	5	5	5	5	5	5	5	5	2	2	2	2	2	5	5	5	3	2	0

55	Mobile phone	40	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0
56	Land-Line phone	15	1	1	1	1	1	1	1	1	1	1					1	1	1	1	1	1	0
57	FAX-Machine	15	1	1	1	1	1	1	1	1	1	1					1	1	1	1	1	1	0
58	Air Compressor with Tyre Inflator	15	1	1	1	1	1	1	1	1	1	1					1	1	1	1	1	1	0
59	Reciprocating pump-cum vehicle washer	15	1	1	1	1	1	1	1	1	1	1					1	1	1	1	1	1	0
60	Batter Charger	19	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	0
61	Chain Sharpener	38	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	1	0
62	Small Tools	78	4	3	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	0
63	Temporary Shelter (flexi tent for 6 men)	80	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	0
64	U V treated polypropylene tarpauline	350	18	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17	17	17	17	17	0
65	Cooking utensiles	30	2	2	2	2	2	2	2	2	2	2					2	2	2	2	2	2	0
66	G.I.Trunk	280	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	0
67	LED-Hi-Beam seach light	280	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	0
68	3KVA Generators sets with all accesories	60	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0
69	Extension chord and board	100	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0
70	Range Umbrella	100	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0
71	Camp items folding table & Tools	40	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0
72	Office furniture	15	1	1	1	1	1	1	1	1	1	1					1	1	1	1	1	1	0

Annexure – C
List of Equipment for pre-delivery Inspection

Sl.	Name of the Equipment
1	2
1	Inflatable Rubber Boats (10 Men) & accessories
2	Outboard motor (2 stroke) with accessories
3	SCUBA (Diving Equipment) sets with communication and BCD and accessories for under water salvage OPS
4	HP compressor for SCBA & SCUBA
5	Collapsed Structure Search Rescue (CSSR) tools, Equipment and Accessories
6	Concrete Cutter
7	Hydraulic Power Shore unit
8	Self-contained breathing apparatus
9	Branch cutting saw (electric)
10	Mountaineering equipment
11	Chain saw (one man operated)
12	Chain saw (two man operated) with power pack
13	Lifting and Pulling Machine / Come along
14	Hydraulic Combi Tool with Power pack
15	Hydraulic Rescue Spreader with power pack
16	Hydraulic cutter with power pack
17	Gas cutting equipment with complete set
18	Bullet chain saw
19	Back-hoe loader cum excavator with rock breaker & accessories
20	Air compressor with tyre inflator
21	3KVA Generators Sets with all Accessories
22	Rescue Tender
23	Tractor Trailer (Hydraulic)
24	RCC Equipment Set
25	10 KVA Diesel generator
26	Bolt Cutter
27	Hydraulic Platform (sky lift) 42mt. height
28	Hydraulic Platform (sky lift) 32mt. height