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
Fax : 0674 – 2534176
Ph. No. 0674-2534177
e-mail ID : srcodishagov@gmail.com;
src.or@nic.in

TENDER CALL NOTICE

No. 5039 / RDM (DM) DT. 12.07.2018

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 (Working)	300
2	Blower for inflation & deflation	100
3	Collapsed Structure Search Rescue (CSSR) tools, Equipment and Accessories	35
4	Mountaineering equipment	95
5	Telescopic aluminium ladder	80
6	Gas cutting equipment with complete set	15
7	Log carrier	200
8	Sisal rope 24 mm (in Kg)	2000
9	Folding standard stretcher	90
10	Spine board long with strap	100
11	Spine board short with strap	100
12	Blanket	200
13	Hand held Megaphone	80
14	HD video Camera	20
15	Thermal Imaging camera	
16	Mobile Phone	40
17	Landline Phone	15
18	Fax machine	15
19	Air compressor with tyre inflator	15
20	Reciprocating pump-cum vehicle washer	15
21	Battery charger	19
22	Chain sharpener	38
23	Small Tools	78
24	3KVA Generators Sets with all Accessories	60
25	Camp Items Folding Table & Tools (in sets)	40
26	Office Furniture (in Sets)	15

27	Rescue Tender	1
28	Tractor Trailer (Hydraulic)	3
29	RCC Equipment Set	3
30	10 KVA Diesel generator	3
31	Hydraulic Platform (sky lift) 42mt. height	1
32	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:- 13.07.2018 to 04.08.2018, 5.00 P.M.
Last date for receipt of tender document :- 04.08.2018, 5.00 P.M.
Date for opening of tenders/Technical Bids:- 08.08.2018, 11.00 AM. onwards
Date of evaluation of samples by Technical Committee:-09.08.2018, 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

ଓଡ଼ିଶା ସରକାର
ରାଜସ୍ୱ ଓ ବିପର୍ଯ୍ୟୟ ପରିଚାଳନା ବିଭାଗ
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GOVERNMENT OF ODISHA
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TENDER CALL NOTICE

No. 5039 /RDM (DM) DT. 12.07.2018

Tender Document for procurement of different types of equipment for ODRAF/ Odisha Fire Striking Force during the year 2018-19

1. Sale of tender document :13.07.2018 to 04.08.2018, 5.00 P.M..
2. Last date for receipt of tender document :04.08.2018, 5.00 P.M..
3. Date for opening of tenders/Technical Bids: 08.08.2018, 11.00 A.M onwards.
4. Date of evaluation of samples by Technical Committee:-09.08.2018, 11.00 A.M onwards.

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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 or a Tender specific authorization from the OEM stating clearly that the authorized dealer/supplier/agent will fulfil all the obligations as per tender terms & condition if selected for placing of supply orders.*

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, NSIC & OSIC guidelines in this regard will be honoured.

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 along with 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 expiry of warranty period.

38. The supplier shall give a performance warranty for a minimum period mentioned in the special condition or two year from the supply of the equipment and successful demonstration / installation. 10% 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. No interest will be accrued on the Performance security amount.

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/-

Additional Relief Commissioner &
Special Secretary to government

Signature of the Bidder with seal

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. Basic Price :
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 MANUF ACTURER (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 (Working)	300	Technical Specification as Annexure-A	90 days from receipt of supply order	18000
2	Blower for inflation & deflation	100	Technical Specification as Annexure-A	90 days from receipt of supply order	10000
3	Collapsed Structure Search Rescue (CSSR) tools, Equipment and Accessories	35	Technical Specification as Annexure-A	120 days from receipt of supply order	1400000
4	Mountaineering equipment	95	Technical Specification as Annexure-A	120 days from receipt of supply order	475000
5	Telescopic aluminium ladder	80	Technical Specification as Annexure-A	90 days from receipt of supply order	24000
6	Gas cutting equipment with complete set	15	Technical Specification as Annexure-A	90 days from receipt of supply order	75000
7	Log carrier	200	Technical Specification as Annexure-A	120 days from receipt of supply order	20000
8	Sisal rope 12 mm / 24 mm (in Kg)	2000	Technical Specification as Annexure-A	90 days from receipt of supply order	10000
9	Folding standard stretcher	90	Technical Specification as	90 days from receipt of	9000

			Annexure-A	supply order	
10.	Spine board long with strap	100	Technical Specification as Annexure-A	90 days from receipt of supply order	10000
11	Spine board short with strap	100	Technical Specification as Annexure-A	90 days from receipt of supply order	10000
12	Blanket	200	Technical Specification as Annexure-A	90 days from receipt of supply order	1000
13	Hand held Megaphone	80	Technical Specification as Annexure-A	90 days from receipt of supply order	24000
14	HD Video Camera	20	Technical Specification as Annexure-A	120 days from receipt of supply order	10000
15	Thermal Imaging camera	20	Technical Specification as Annexure-A	120 days from receipt of supply order	75000
16	Mobile Phone	40	Technical Specification as Annexure-A	90 days from receipt of supply order	4000
17	Landline Phone	15	Technical Specification as Annexure-A	90 days from receipt of supply order	75
18	Fax machine	15	Technical Specification as Annexure-A	90 days from receipt of supply order	1500
19	Air compressor with tyre inflator	15	Technical Specification as Annexure-A	90 days from receipt of supply order	15000
20	Reciprocating pump-cum vehicle washer	15	Technical Specification as Annexure-A	90 days from receipt of supply order	15000
21	Battery charger	19	Technical Specification as Annexure-A	90 days from receipt of supply order	9500
22	Chain sharpener	38	Technical Specification as Annexure-A	90 days from receipt of supply order	19000
23	Small Tools	78	Technical Specification as Annexure-A	90 days from receipt of supply order	15600
24	3KVA Generators Sets with all Accessories	60	Technical Specification as Annexure-A	120 days from the receipt of supply order	150000
25	Camp Items Folding Table & Tools (in Sets)	40	Technical Specification as Annexure-A	90 days from receipt of supply order	2000

26	Office Furniture (in sets)	15	Technical Specification as Annexure-A	90 days from receipt of supply order	7500
27	Rescue Tender	1	Technical Specification as Annexure-A	120 days from receipt of supply order	200000
28	Tractor Trailer (Hydraulic)	3	Technical Specification as Annexure-A	90 days from receipt of supply order	36000
29	RCC Equipment Set	3	Technical Specification as Annexure-A	90 days from receipt of supply order	28500
30	10 KVA Diesel generator	3	Technical Specification as Annexure-A	90 days from receipt of supply order	36000
31	Hydraulic Platform (sky lift) 42mt. height	1	Technical Specification as Annexure-A	300 days from the receipt of supply order	800000
32	Hydraulic Platform (sky lift) 32mt. height	1	Technical Specification as Annexure-A	300 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/Globally, if any. A clear, unambiguous statement shall be made if an item has not been sold anywhere in India/globally 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 two year warrantee or manufacturer warranty period whichever is more. If during the warranty period the equipment required major repair then it shall be replaced by new one of same model or higher.

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. For evaluation of technical bid and demonstration the bidder shall be required to submit sample of the equipment as per Annexure-D. The date for submission of sample /demonstration of the equipment shall be intimated in due course. 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

(Technical Specification)

Sl	Name of the Equipment	Revised Specification
1	Life Jacket (Working)	• US Coast Guard Certification, through testing by Underwater 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, • 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.
2	Blower for Inflation & deflation	Battery operated blower for inflation and deflation of inflatable rubber boats. • Weight: maximum 1.7 Kgs. • Dimensions: maximum 12" x 4" x 6" • Maximum Draw 20 Amps. • 102" (8'6") cable w/alligator clips • 72" (6') inflation hose • Works on 12-volt DC, 7AH car or marine battery (lead Acid) • Runs continuously min for 20 minutes at a time. Without any effect motor. • Special Manometer (Pressure selection dial) allows you to select the pressure from 1 PSI (0.07 Bar) to 14 .5 PSI (1 Bar) • Set of 7 adapters for different types of valves • Connection cable for battery 50 meter length. • Fitted with easily accessible air filter for easy cleaning • Pumping action: Two-stage pump ○ Stage 1: High capacity turbine blower for rapid

		inflation at 450 liters per minute ○ Stage 2: Automatically switches a high-pressure piston pump to pressurize the hull from 1 PSI to 14.5 PSI at 160 liters per minute. Stops automatically when desired pressure is reached as per the setting on the pressure selection dial (manometer) Accessories: 2 nos. spare hose, 1 set adapter, connection chord for battery 50mtr.
3	Collapsed Structure Search and Rescue (CSSR) Tools, Equipment and accessories	One CSSR set comprises of the following Tools , Equipment and Accessories **<u>Generator Portable, 3 KVA Self Start: 1 no</u>** ▪ 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 ▪ Reputed make single cylinder Engine Air cooled ▪ Engine throttle- electronic governor (Load sensitive), 1500 rpm minimum ▪ Choke- Auto ▪ Engine control panel display- i- monitor equipped ▪ Starting- electric/ recoil start ▪ Fuel type- Petrol ▪ Fuel tank capacity (Ltrs.)- 12.5 ▪ Continuous operating hours- 6.9 ▪ Oil alert system ▪ AC circuit protection Device with Pilot Lamp **<u>Chipping Hammer :2 nos</u>** ▪ 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: 10-12 kg. ▪ Noise level: not more than 120 db. ▪ Bits: pointed & flat type with suitable protective carry case. ▪ Vibration-Shall not be more than 12 m/s2

		Specifications of chipping hammer bit flat qualitative requirements Bit length- 28 cm to 41 cm. Bit diameter- 18 mm Material- High tensile steel with minimum 55% carbon, SDS type. **Accessories:-** • Flat Bit nos. 4 • Pointed Bit 4 **<u>Rotary Rescue saw with Diamond tipped Blade: 2 nos</u>** ▪ 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 minimum 14" 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 litter 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 ±10% power rating with a maximum no load speed of 4900 rpm±10% and full load speed up to 30000rpm ±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 17kg. ▪ 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 l00 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 / Government of India approved laboratory (Negative Pressure or Shroud test with no entrained airflow) and the air movement shall exceed 4500 cubic feet per minute. AMCA / Government of India approved laboratory testing Certificate to be enclosed. The ventilator shall be designed with the following: Engine Manufacturer: Honda or Briggs Start on Engine or equivalent 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 to 28 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 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. • Tenderer 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.Required standard certification must be provided with offer with indicating make and model. **<u>Electric Chain Saw: 2 nos</u>** 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. **<u>Plier 8′- 5 nos</u>** • 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 **<u>Vice Grief 10"- 5 nos</u>** • size : Length 10" • Material: made of forged steel • Teeth : On both jaws **<u>Bolt Cutter 30"- 2 nos</u>** • 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 for a length of 6 to 8 inches • Application : Suitable for cutting hard material viz. bolt, iron rod of 10 to 14 mm diameter **<u>Bolt Cutter 14"- 4 nos</u>** • 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 **<u>Chisel for concrete 8"- 5 nos</u>** • Size- length 8", width 1" • Material- made of hardened alloy iron, specially heat treated • Application- suitable for chiselling of concrete & brick. **<u>Chisel for concrete 4"- 5 nos</u>** • Size- length 4", width 1" • Material- made of hardened alloy iron, specially heat treated • Application- suitable for chiselling of concrete & brick width ½" **<u>Shovels Round 8 inch- 10 nos</u>** • 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 ironIS-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 scams, 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 fiber 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 off & 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 off & 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 Ibs • Type : Nag ore type • Size : Width 4” • Provision : ¾” head dia at one side of hammer & claw on the other side to remove nail • Handle : Wooden handle **BIS Specifications** • Striking face harness : 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 confirm 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 handleIS-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 Ibs • 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 harness 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 socked 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 molded from natural or colored HDPE(High density polythene bucket) • The HDPE used for injection molding 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. /11/2-2" dia.) – 8 nos** • Size- length 6 feet, external dia. 1 ½-2 " & thickness 5 mm • Material- seamless steel duly powder coated painted. **batteries 1.5 v- 20 ns** • Standard **Spray bottles- 4 nos** • Standard **Ear plug-50 pairs** • Material :-Made of soft eco friendly fiber 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 or 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 fiber of fiber 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. • Color- Green/ navy blue • Fabric (IS: 2089-1997) **Tarpaulin 6*6- 8nos** • Size- 6 meter* 6 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. • Color- Green/ navy blue
4	**Mountaineering Equipment**	**The Mountaineering Equipment will consist the following equipment** **Rope & Web:** **Dynamic 9.8 mm diameter Rope: - 05 nos** Design for climbers, greater longevity, easy to use and ultrasonic finish. Should be light weight, facilitate manoeuvres. • 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 **Semi-static 10 mm diameter rope: - 05 nos** Design for caving and cannoning, offer excellent grip and consistent handling • 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 **Rope Rescue 11 mm- 05 nos** **Resistant to abrasion idle for users who are not expert in rope techniques.** • Diameter: 11 mm • Material(s): polyester, nylon • Certification(s): CE EN 1891 type A, EAC, NFPA 1983

		Technical Use • Weight per meter: 82 g • Strength tied with figure-eight knot: 19 kN • Strength with sewn termination: 22 kN • Impact force (factor 0,3): 5,2 kN • Number of factor 1 falls: 12 • Construction: 32 carrier • Percentage of sheath: 41 % • Static elongation: 3 % **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. • polyethylene sling • nylon stitching • Breaking strength: 22 kN • Weight: 48 gms • Certification(s): CE EN 795 B **Nylon Runner- 05 nos** Webbing with sewn eye on each end for specialty rigging application for anchors. • Versatile, strong and durable nylon construction • Strength; 36kN • Length; 96” • Weight: 230 grams • CE and UIAA certifications **1 inch Tubular Webbing – 1 no** • Black in colour • Versatile, strong and durable nylon construction • Strength; 17.8 kN • Length: 150 ft • MIL SPEC (Military Standard) **Anchor Strap: - 05nos** • Fitted with forged D-ring on the end

		• Made up of 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: Aluminum Ally & 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: Aluminum 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 **<u>Climbing Harness:</u> - 10 nos** • The waist-belt equipped with two Double Back buckles which easily adjust and centre the harness, keeping the equipment loops in optimal position • Adjustable leg loops to allow the harness to easily adjust the size for different clothing • Design to allows the weight to be distributed between the waist-belt and the leg loops • ventilated waist-belt, and pressure points lined with soft fabric • 2 rigid equipment loops in front and 2 flexible loops in back for carrying all necessary equipment without interfering with a backpack • Material(s): high-strength polyester webbing, perforated closed cell foam, polyester fabric • Waist belt- 65-96 cm, Leg loops- 48.5-59 cm, Weight- 490 g • Waist belt 76-107 cm, Leg loops- 54-67 cm, Weight- 540 g • Certification(s): CE EN 12277 type C, UIAA **<u>Full Body Harness:</u> - 03 nos** • The full body harness should be a proper rescue harness & not a sports harness. • It should be made of high strength nylon & polyester fabrics • The harness should be a padded full body harness with load bearing metallic anchor points for a fall safety, victim pick up & work positioning: • A dorsal (back shoulder), a sterna (front chest), a ventral (front waist) & Two lateral (side waist) attachment / anchor points. • The harness should have a cross back design (X) to distribute load & lower pressure points during a rescue operation. • It should have a wide & cushioned waist belt, leg loops & shoulder straps with breathable lining material for comfort to the rescuer during long suspensions. • The waist belt, shoulder straps & leg loops should be size adjustable. • The harness should have minimum five to six tool holder loops. • It should be available in various sizes to fit every Indian human physique • The waist belt sizes should fit to size 70 - 110 cm (even smaller size should be available)

		• Leg loops should fit to size 45 - 65 cm (even smaller size should be available) • The weight of the harness should not be more than 2190 gms • The harness should be ANSI Z359.11, NFPA 1983 classes III, CSA Z259.10, CE EN 361, CE EN 358, CE EN 813 certified. **<u>All purpose Harness</u>: - 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 **<u>Belay/Rappel Gloves- 15 Pairs</u>** • 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) **<u>Climbing Helmet: 15 nos</u>** 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 centered on the head. • Injection-molded 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 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 Munster hitch. Asymmetric pear shape facilitates opening and the manipulation of the locking system. Key lock system avoids any involuntary snagging of the carabineer. 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: 7 kN • Gate Opening: 25 mm • Certification(s): CE EN 362, NFPA 1983 technical use

		<u>Ascender Left and Right – 05 Pairs</u> 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; Aluminum/ stainless steel /plastic /rubber/nylon • Cam Material; Stainless steel • Weight; 165 grams • Certification: CE EN 567, UIAA **<u>Self Breaking Based Descender with Fall Arrester- 02 nos</u>** • The device should be Self Breaking cam & teeth based Descender. • The handle should allow the user to unlock the rope and control the descent with the hand on the free end of the rope. • Anti-panic function which should activate if the user pulls too hard on the handle • It should have an Anti-error catch to minimize the risk of an accident due to incorrect installation of the device on the rope The shape of the cam is designed to improve rope glide when ascending • It should have a feature that prevents dropping the device and facilitates rope installation when passing intermediate anchors • It should also be useful to make a progress-capture haul system • It should enable to lowers heavy loads up to 250 kg • It should be compatible for rope diameters 10 to 11.5 mm • Weight (Maximum): 530 g • It should have certification(s): EN 341 class A, CE EN 12841 type C, ANSI Z359.4, NFPA 1983 Technical Use, EAC **<u>Bar Descender- 02 nos</u>** • The number of bars engaged on the rope should be

		adjustable at any time to obtain the desired amount of friction • Good distribution of friction and heat to preserve the rope from burning • It should not twist the rope • Weight: 470 g • Rope compatibility: Single rope (9 to 13 mm) or doubled rope (8 to 11 mm) • Material(s): stainless steel frame, aluminum bars **Self-Braking Descenders- 2 nos** • Cam based compact self-braking descender. • Should have a multi-function handle to control of the descent speed and positioning • It should have a safety clip to enable the device to remain connected with the harness • It should have an automatic return system on the handle. • It should lower heavy loads up to 200 kg • Should be compatible with rope diameter: 10.5 mm - 11.5 mm • Weight: 380 g • It should have certification(s): EN 341 classe A, CE EN 12841 type C, NFPA 1983 Technical Use, EAC **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 **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 **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 • Weighs: 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 **Small 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 **Traveling Pulley: 02 nos** • A transport pulley with two in-line sheaves & integrated self locking carabineer attached to the pulley • Carabineer breaking strength: Maj Axis 25 kN, Minor Axis: 10 kN, Open Gate: 8 kN • front and rear fairings • two supports for the carabiners to be protected from cable wear • clip-on, optimally shaped lockable cover (screws included) makes it easy to connect the TRAC PLUS to a pulley lanyard • Cable & Rope diameter: 9 to 13 mm • Weight: 405 g • Material(s): aluminum, stainless steel, nylon • Certification(s): CE, EAC **Edge Pad: 05 nos** • To help protect a fixed rope from abrasion • Rugged, lightweight sheath without PVC • Velero clouser and clip for easy and quick installation • Weight: 95 grams **Edge Protector: 02nos** • 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 **Canvas Rope Protector: 05Nos** • 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 **Born Entry Ease: 02 nos** • 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 **Stainless Still Rescue Litter: 01 no** Military-style litter with Stainless Steel Rescue Litter, featuring Durathene TM 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. • 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)

5	Telescopic Aluminium Ladder	The construction of the ladder should be made with a view to combine lightness with strength and durability. All the metal parts used in the ladder are non-corrosive or are treated to resist corrosion. Aluminium alloy string 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 the breaking load of 2995kgs to be fitted for extension and lowering the ladder. Locking pawls must be of aluminium alloy casting and should be fitted in S.S. 304 sheet metal boxes of 2mm thickness. Head wheels of fiber must be fitted at the top of the ladder. • When Fully Extended 17′ Approx. • When Closed 10′. 3″ Approx. • Overall Width 535mm EXACT • Total Approx. Weight 28 kgs Approx. • Total length of each section 10′.1″ • Total Number of Steps 20 nos. in complete ladder The ladder consists of one main and one extending section, the width of the extending section inside the strings is not less than 12″ [305 mm] approx. The ladder will be constructed with trussing and it will be on the underside of the ladder when it is in operational use. The height of each section must not be less than 140mm approx. to give extra strength and sturdiness to the ladder. Suitable head wheels of fibre only are fitted to avoid friction between the ladder and the wall surface. PVC or any other material head wheels should not be fitted in the ladder. The ladder section fits as clearly to one another keeping to the minimum, the extent of step in or step out when passing from one section to another and the distance between the rounds of the adjacent sections should preferably be 38 mm exact. Steps are made of approx. square section and are provided with nonskid treads raised above the surface of the square tube, the steps are placed at 12″ centre to centre so as to facilitate easy leg lock even for fireman with increased heights and each section should not have more than 10 steps.

		The construction of the ladder is such that the extending section slides easily without excessive clearance in the guidelines, no lubricants are used in the guide channels to extend the ladder smoothly. The ladder runs smoothly on nylon rollers in the provided guides. The extending section is been guided in such a way that the section cannot separate from the ladder. The ladder is capable of being fully extended by one man by means of the nylon rope provided which runs on double action pullies fitted in the ladder so as to leave the working face of the ladder unobstructed. The rope provided in the ladder will be of 1.1/2" [36 mm] circumference or 12 mm diameter to provide a convenient grip and is reasonably flexible when wet. The end of the rope is attached to the bottom of the main section so as to leave the minimum amount of slack when the ladder is completely housed. Safety limits are fitted for preventing over extension of the ladder. Double action automatic locking pawls are fitted to lock the ladder at any position of extension at which the rounds on the main and the extending section coincides, preferably so arranged that they engage automatically, the locks can be released by slightly extending the ladder before lowering. The action of the pawls is such that they are set for engagement until they have been rested on a step and trip to clear immediately the ladder is extended. The ends of the main section are fitted with rubber feet such that the ladder gets proper grip against the ground. The standard of the workmanship is such that the spares are available and can be provided for each and every replaceable part, the spares are standard and fit without any difficulty. Finish of the ladder is such that the parts of the ladder do not have any sides out of way, which can hurt the fireman, or the person handling the ladder. The ladders should be guaranteed for a period of 24 months from the date of supply against any defects. Any worn-out parts should be replaced by manufacturer during the guarantee

6	Gas Cutting Equipment Complete set	The portable cutting torch shall be used by everyday liquids such as petrol, diesel. 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 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. ➢ Automatic shut off ➢ Gas cutter heads and tips shall be produced a refrigeration (cold) effect **PERFORMANCE**: ➢ 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). 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. **Comprising of main components as under**: ➢ 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) Standard: The equipment and accessories should be new, unused and should conform to the latest design and specifications. Approved/ Certification: CE standard/ NABL approved or equivalent international standard approved.
7	Log Carrier	Trolley type Log Carrier made of heavy duty 30 mm diameter, 16 SWG stainless steel pipe having 8 nos. caster wheels to be used for displacement of cutting logs from the disaster site to clean the communication roads. The log carrier should have capacity to load 1 Quintal wood minimum. Wheel diameter -200mm. Wheel Nos. – Four. Wheel type - Movable to 360 degree. Frame size – Front height – 700 mm. Rear Height - 1 meter. Width – 750 mm. Depth – 600 mm. Platform: - Platform for the carrier should make of 4mm thick Aluminum Checker sheets elevating towards front side. **Frame pipe -** Pipe thickness - 16 SWG of reputed manufacturer. Pipe diameter – 30 mm. Ergonomic handles to be provided **The item should be new, unused and should conform to the latest design & specification.** **Required certification shall be provided with offer for safety point of view.**
8	Sisal Rope 24mm	Standard the sisal rope of 24 mm dia, 3 inches circumference, 50 mt. length linear breaking load of minimum 3.6 KN.

9	Folding Standard Stretcher	• 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.
10	Spine Board Long with Strap	• 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 • 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
11	Spine Board Short with Strap	• 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)
12	Blanket	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.
13	Hand held megaphone	Hand held megaphone of 16 watts RMS (20W Max), dry cell & 12 V car battery operation, built in SIREN with ON/OFF Switch. 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, Rechargeable battery with charger 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
14	**HD Video camera**	**<u>HD Video Camera</u>** • 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, Shoulder Strap, Lens Cap, Instruction Manual • Screen Size: 3 Inches • 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: (Minimum) 20.0 Megapixels • Optical Sensor Resolution: (Minimum) 20.0 Megapixels • 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 Millimeters • 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, Centre-weighted, Spot • Viewfinder Type: digital • Includes Rechargeable Battery: No • Has Self Timer: Yes • Includes AC Adapter: No • Includes Remote: No • Includes External Memory: No ± 1% tolerance of the above specification is acceptable.
15	**Thermal imaging Camera**	**<u>Thermal Imaging Camera:</u>** 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: • 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 or equivalent standard
16	Mobile Phone	4G VOLTE enabled dual SIM smart phone of reputed make Nokia/Samsung/LG/Motorola/ or equivalent. Connectivity: GSM, 3G, WCDMA, 4G VOLTE. 13MPor higher primary camera with recording @30fps, f1.7 flash, auto focus and 8MP or higher front facing camera Minimum 12.19cms (4.8.inch) Full HD (1080 x 1920) capacitive touch screen with Gorilla Glass protection. 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)

		3300 mAH or higher capacity lithium-ion battery. Accessories: Charging Adapter, Earphone, etc.
17	Landline Phone	• FSK/DTMF compatible with auto-detection, Redial function & Pause Function. • 16-digit LCD display with Green back light, Anti- Steal dialling 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
18	FAX Machine	• Walk-up black and white or color fax capability. • Up to 100 speed dials. • Up to 200-page memory • Manual fax sends and receives. • Automatic busy redial up to five times. • Automatic no-answer redials 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.
19	Air Compressor with Tyre Inflator	Type : Reciprocating, 2 Stage,2 Cylinder, Air Cooled Compressor Prime Mover : Electric Motor,7.5 HP, 3 Phase, 415 V, 50 Hz Piston Displacement : 700 lpm Free Air Delivery : 580 lpm Maximum Pressure : 175 PSI Type of Mounting : Tank Mounted Tank Capacity : 220 Lts Accessories: 1. Foundation Bolts 2. Interconnect Pipelines(GI) and Accessories of suitable Size 3. Ball Valve (2 Nos) 4. 10 Meter Air Hose with Foot Connector 5. MCB for Air Compressor & Tyre Inflator 6. Compressor Oil

20	Reciprocating Pump cum Vehicle Washer	Discharge : 17.5 lpm No. Of Washing Guns : 1 Operating Pressure : 45 Kgf/cm^2 Motor Rating : 2 to 3 HP, single phase, 240V, 50Hz Pump Speed : 340 RPM Min Mounting : Base Length of Hose pipe: 10 mtr
21	Battery Charger	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. INPUT - 210V-230V A.C supply OUTPUT - 6V-36 Volt DC CAPACITY - 30 AMP make in all step CONTROL- Voltage Selector Switch-6 step (6 Volt, 12 Volt, 18 Volt,24 Volt, 30 Volt and 36 Volt DC) PROTECTION - IN INPUT SIDE -HRC fuse -10 Amp. DCOUTPUT SIDE- HRC fuse- 20 Amp. DC INSTRUMENT- Moving Coil Ammeter 0.50 AMP (for D.C) 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. CABLE:- INPUT SIDE - 1.5 mtrs insulated copper wire with 3 pin Top, 15 AMP OUTPUT SIDE - 15 mtrs insulated copper wire of 4 mm sqr. fitted with insulated clamp. DIOD - Diod should be 70 AMP range.
22	Chain Sharpener	• 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. minimum grinding wheel with 7/8 in. minimum arbor • Mounts to bench, wall or vise • 2800 RPM minimum grinding speed, 50 Hz min, 85-Watt minimum • Plugs into a standard 220 Volt minimum electric supply
23	Small Tools	A tool box containing following type of tools make Taparia or Equivalent with Required quantity as below.

		a) Open DE spanner (12 pcs of different Sizes) from 4 x 5 to 30 x 32 – 1 Set. b) Ring spanner set of 12 pcs, size different from 4 x 5 to 30 x 32 – 1 Set. c) Crew Driver Set of 6 pcs. – Blade length not less than 15 cm. d) Pipe wrench 10" size - 1 no. e) Alen / Hex key set (9 pcs of different sizes) -1 set. f) Wire cutter – 6" length - 1 pc. g) Combination Pliers of length 210 mm – 1 no. h) 8 pcs Hex bit socket set – 1 no. i) Adjustable spanner – 1 no
24	3 KVA Diesel Generator Sets with all accessories	AC and many other appliances output, ultra silent, portable, compact, with road clearance wheels, Max output-3500VA, Rated output 230V/50Hz single phase,-3500VA, 230 V Engine type, single cylinder, Air cooled, Engine Throttle-Electronic/ Mechanical Governor (Load sensitive),choke- Auto, engine control panel display – Monitor Equipped, starting- Electric/ Recoil Start, Fuel Type- Diesel, Fuel Tank capacity (Ltrs)-15 max. Oil alert system, Ac Circuit protection device, Pilot lamp Related speed 1500RPM min with all accessories.
25	Camp item, Folding Table and stools	<u>Folding Table:</u> Material of construction: PVC Size: 1150L x 740W x 725H <u>Stool:</u> Material : PVC Size: 290Lx290Wx470H
26	Office Furniture	Each set of furniture consists of the following items: <u>1. Executive office Table:(01 No.)</u> Size: 1500 X D - 750 X H - 750 • 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.

		2. Executive Chair :(01 No.) PU upholstered seat and back. Cantilever base made of stainless steel/ MS with chrome plated. Dual tone arms with wood and aluminium. Size: 570Wx660Dx975H 3. Visitors Chair (02 Nos.) Reputed make PVC chair with dimension 610Lx620Wx910H 4. Steel Almirah:(01 No.) 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.
27	**Rescue Tender**	The appliance shall be designed to carry the equipment listed in Annex-1. The equipment shall be arranged on a manner to allow the crewmembers to get ready in vehicle itself. The appliance shall be suitable geared to provide a road speed of 70 km/h on a level ground. The acceleration shall be such that with a warm running engine, the fully laden appliance shall attain a speed of 64 kg/h from a standing start, through the gears. The appliance shall also be capable of being started from rest up a gradient of 1 in 4 when laden. **MATERIAL SELECTION AND TREATMENT** ➢ The choice of materials to be used in the construction of the appliance shall be made with a view to combining lightness with strength and durability. ➢ Timber shall not be used in the body construction. ➢ The appliance shall be required for use in conditions with constant high humidity and heat. This shall be given full consideration while selecting the materials. ➢ All metal parts exposed to atmosphere shall either be of corrosion resisting material or treated to resist corrosion. **2.9.2 DESIGN AND CONSTRUCTION** The chassis shall have the gross vehicle weight of not less than 25000 kg including of equipments, crewmembers, etc. and shall have the following dimensions: Wheelbase : Approx. 5000 mm Turning circle : Not more than 20 m

		Road clearance : Not less than 230 mm Over-all width : Not more than 2.5 m Height : Approx 3.6 m from ground level The chassis shall be 6x4 and the engine fitted on the chassis shall comply the respective emission norms in force at the time of delivery of chassis. The chassis shall be brand new with the following specifications. Engine : 6 cylinders in-line water cooled, turbo charged, diesel inter cooled engine developing not less than 180 hp and conforming to prevalent emission norms Clutch : Single plate dry friction type hydraulically actuated. Gear Box : Synchromesh gearbox with crawler gear. Front Axle : Heavy duty, forged, ‗I' beam. Rear Axle : Single reduction, hypoid gears, fully floating axle shaft with tandem axle. Steering : Integral hydraulic power assisted steering Brakes : Dual circuit fully air braking system with pneumatically operated parking brakes on rear wheels. Suspension: Semi- elliptical leaf spring at front and rear with hydraulic double acting shock absorber on front. Frame : Ladder type heavy duty frame with riveted / bolted cross members. Wheels and Tyres: As per manufacturer's design– 11 Nos. (including spare wheel) Fuel Tank : Minimum 160 liters capacity. Electrical System: 12/24 volts. 120 Ah capacity battery with Alternator. Cowl : Standard cowl duly painted in RED color with instrument cluster, rear view mirrors, Wiper system original driver seat, safety belts.

GVW : Not more than 25000 Kg

Safety features: Anti Lock Breaking System (ABS)

2.9.3 ALTERNATOR UNIT

- A 230 / 440 V, 50 cycle alternator shall be provided which shall be driven by vehicle engine through a suitable PTO.
- The alternator shall be screen protected, continuously rated, self-regulating, self excited, class `E' insulation type, having an output of not less than 25 KvA at 0.8 power factor, 220 / 440 V Three phase, 50 cycles.
- The alternator shall be equipped with a direct coupled flange mounted exciter which shall automatically keep the alternator voltage constant and provide an approximately straight line voltage characteristic within 5 percent at all loads, and at any pre-set factor between 0.8 and unity.
- Controls shall be mounted near the generator and shall consist of the following:

1. Three sockets (plugs) and switches with 3 phase connections
2. Four sockets (plugs) & switches (MCB's) with single phase connections of min. 15 AMP capacity
3. Four sockets (plugs) & switches (MCB's) with single phase connections of min. 10 AMP capacity
4. RPM Meter digital – 1 No.
5. KW meter – 1 No.
6. Ampere meter separate for each phase – Total – 3 Nos.
7. Frequency meter – 1 No.
8. 32 Amps. TPN MCB – 1 No.
9. Hand throttle control;
10. Automatic voltage regulator
11. Pilot lamp indicating the phases

- Two cable reels each with 30 m of cable shall be provided for single-phase connections. The cable shall be a 3-core heavy duty flexible cords 250 V grade having a conductor of cross-section 4 mm (128/0.20 mm) conforming to IS 434(Part 1):1964 or IS 694:1977 along with necessary plugs and sockets.

		➢ Two cable reels each with 20 m of cable shall be provided for Three phase connections. The cable shall be a 5-core heavy-duty flexible cords 440 V grade conforming to IS 434(Part 1):1964 or IS 694:1977 along with necessary plugs and sockets. ➢ An earthing rod with 3 meters long flexible earthing cable (flat type) shall be provided and should be placed in a closed box near the control panel. **2.9.4 BODY WORK** Enclosed accommodation for six persons shall be provided in the driver cab-cum-crew compartment including the driver and the in-charge of the crew. Both the seats should be independent. The driver‘s seat should be adjustable and comfortable. The rear compartment of driver‘s cabin should have one removable seat for full width of cab for 4 (four) crew members. The cab floor except the mudguard arches should be covered with 3 mm thick Aluminum chequered plate and the mudguard arches shall be covered with 1.22 mm thick aluminum chequered plates rigidly fixed to the under frame cross members by means of nuts and bolts or riveting. Trap doors for topping up oil etc wherever necessary shall be provided. Two roof lights should be provided in the driver‘s cabin dwell vision and external rear view mirrors should be fitted to the cab. The driver cum crew cabin shall be provided with full four doors, one for driver, one for officer and two at the crew compartment. The doors shall be generously sized for easy embarking / disembarking of crewmembers. All the doors shall be fitted on the super structural members, each hung upon three invisible coach type M.S. stout hinges and fitted with best quality handles. The door handle on outside of driver seat shall have a locking arrangement. Other doors shall be lockable from inside. In addition to the doors locks, aluminum tower bolt of 8‖ shall be provided for all the doors from inside Adequate grab rails shall be provided for easily boarding and alighting from the appliance. The windscreen glass shall be provided in the two valves and shall be semi curved in shape. Each glass shall be fitted in

		E.P.D.M. rubber beading. The glasses shall be 5 mm thick toughened safety glass. The rubber beading used for fitting glasses and window frame shall be E.P.D.M. rubber. **2.9.5 SEATS** The driver seat shall be adjustable type vertically, forward and backward. The officer seat shall be fixed type. Both the seats shall be rigidly fixed to the flooring by means of nuts and bolts. The seat cushion shall be of latex foam rubber 75 mm thick upholstered in good quality foam leather cloth. The back seat shall be of latex foam rubber 50 mm thick upholstered in good quality foam leather cloth. Below the crew seat, two lockers shall be provided. One for the batteries and another for keeping the accessories. The extra length of battery cable shall be provided if required. The crew seat shall be rigidly fixed to floor by means of nuts and bolts, running full width of the vehicle suitable for sitting five firemen, covered with 75 mm x 50 mm cushion latex foam rubber upholstered in good quality foam leather of approved shade. Below the crew seat, two lockers shall be provided, one for storage of batteries and another for keeping accessories. The extra length of battery cable shall be provided if required. The structure/frame work shall be of welded constructions and made from 2mm thick MS pressed sections and square tubes. The Angles and channels used shall be of min. 3mm thickness. The complete structure material shall be treated for anti corrosion by Zinc Plating. The plating thickness shall not be less than 20 microns. Two coats of Epoxy paint shall be applied to the completely welded structure. The structure shall be so designed to avoid any vibration / ratting / deformation in the intended usage of the vehicle. The Under frame cross members shall be done from MS rolled channels of 100 x 50 x 5 mm (Min.) and the Floor angles shall be done from 50 x 50 x 6 mm. The interior paneling shall be done from 1.22mm thick aluminum sheets & the exterior paneling shall be done from 1.60mm thick aluminum sheets.

		2.9.6 LOCKERS The lockers should be provided for storage of all accessories. The lockers will have drawers as per the latest international standards i.e. roll in-roll out type with opening in tapered position giving very easy & immediate access to all equipments. All equipments should be stowed very scientifically & systematically in the drawers & each piece of equipment shall have its designated location so that at the time of EMERGENCY the required equipment can be very easily located & removed for use. Location of equipment (labels) should be provided on each drawer for immediate identification. All the equipment should be properly clamped and strapped in the drawers to prevent shifting of the equipments while the vehicle is in motion. The drawer sides shall be constructed from aluminium angles of minimum 100mm X 4mm thickness and the bottom floor of the drawers will be made from min. 3 mm thick aluminium sheets and then covered with good quality neoprene rubber sheets. The drawers should have self locking system to prevent accidental opening while the vehicle is in motion. The bottom edges of the drawers shall be covered with SS 304 angles of min 2 mm thickness. The roll-in-roll-out drawers should be made according to the required size suitable for the equipment that are to be stowed. The lockers should be covered with Push-Pull type aluminium roller shutters only for faster & smoother rescue operation at the time of emergency. The roller shutters shall be made from extruded aluminium sections with suitable roller, spring, guide channels etc. All aluminium sections used shall be properly anodized. The Roller shutters shall be rolled inwards underneath the roof giving unobstructed access to the equipment lockers and the firefighting material. These roller shutters should open in every position of the vehicle even in rough terrain. Guide rails shall support the shutters over entire length on both sides to make them absolutely torsion free. The opening of the roller shutters should be done by means of a lift bar provided. This should be of the self-locking type so that while the vehicle is moving, the shutters do not open accidentally during movement of vehicle.

		Roller shutters shall be made of hollow rectangular shaped aluminium links which shall be inter connected with rubber /plastic/ PVC profiles sealing the roller shutter watertight when closed. These roller shutters should be durable, maintenance free, weather and corrosion resistant. All lockers shall be fitted with internal lighting which shall be capable of being automatically switched `ON' and `OFF' by the opening and closing of the roller shutters. A master switch for isolating the locker lighting circuit shall also be provided. Grab-rails and non-slip steps be provided wherever necessary. A ladder made out of S.S. round or square pipe of 1‖ diameter shall be provided at the rear of the appliance to provide easy access to the roof of the vehicle. **2.9.7 CABLE WINCH** An electrically operated cable winch of not less than 6.5 tons pulling capacity (single layer) shall be provided. The winch unit should be complete with minimum 5.5 hp, 12v or 24v DC series wound electric reversible motor for pulling operations. The motor and solenoids shall be grounded to the battery. It shall have an automatic load holding brake system for holding the load. For free spooling the clutch design shall be easy to use type with spring loaded pull and rotate system. The gear system should be 3 stage planetary type for faster line speed and the gear reduction ratio shall not be more than 300:1 for maximum duty cycle, the rope drum shall not be of more than 8 inches diameter and shall be supplied with minimum 90 ft heavy duty galvanized wire rope with replaceable self locking clevis hook and shall be mounted on the front bumper of the vehicle with suitable strong supports and a 4 way roller fairlead. Weather resistant clutch housing and solenoid assembly for maximum durability under any weather should be provided. Winch shall be provided with a wireless remote control mechanism for ease of operation. **2.9.8 TELESCOPIC LIGHT MAST** A compact, low profile, roof mounted folding type, lighting mast, fitted with 4 X 1500 watts waterproof halogen lamps. The mast shall be elevated and vertically extended up to 4.5m

		pneumatically from the rooftop. The mast shall be installed on the roof of the vehicle at a suitable location. The light mast shall operate in temperatures of - 40 degree C up to 60 deg C, with anti-twist lock, with safety valve and drainage outlet valve. The mast will be equipped with an internal spiraled electrical cable with 9 wires with a section each of 1.5 mm² and 13 wires with a section each of 0.22 mm², the group of 13 wires will be screened. Each section of the mast should have a thickness of not less than 3.5 mm². The telescopic mast should be extremely resistant and designed with a minimum of 4 sections and it will be equipped with an internal spiraled electrical cable with 9 wires with a section each of 1.5 mm² and 13 wires with a section each of 0.22 mm², the group of 13 wires will be screened. Each section of the mast should have a thickness of not less than 3.5 mm². Each section of the mast should have a water drainage outlet. The folded and stowed height should not be more than 1800 mm. The Light mast will have Halogen flood light and reflectors in weatherproof casing. The floodlights on the top should have a minimum electrical rotation of 365º and a tilt of 310º Suitable connections for taking permanent Power Supply from generator set through an internal spiral wire mounted inside the mast should be provided. A safety device must be added, by means of an infrared sensor that will stop the movement of the mast when tilting to the parking position in case any obstacle is detected on the way down. All the functions of the mast, including extension and return to the original position, lights on/off, automatic restore should be capable of being done through a wired remote control. The same remote control must work without wire (wireless mode) through a male/female connector IP68 which keeps the battery under charge, whenever the remote is plugged and there is tension on the power circuit. Every single input given by the user, no matter which, will be confirmed by a visual led and an additional led will confirm the battery status; every single group of 2 lights when switched on will have a corresponding led alight on the remote control that will go off only when the

		lights will be switched off. Every single input given by the user on the remote control will make the whole remote keyboard alight for not less than 15 seconds. **2.9.9 MISCELLANEOUS** A suitable bumper shall be provided at the rear rigidly fixed to the super structural members by means of nuts and bolts which is supplied along with the chassis Two folding ladders made out of S.S. round or square pipe of 1‖ diameter shall be provided at the rear of the vehicle to facilitate access to the rear deck. 2 numbers of 1‖ diameter aluminum pipe railing with sufficient number of aluminum double socket brackets shall be provided to the rear body over the deck. A heavy-duty Towing hook shall be provided and fitted the rear bumper by means of nuts and bolts. Quick removable type wire mesh guard made from 1‖ X 1‖ size MS wire mesh of 16 SWG covered in MS angle frame shall be provided to all the glasses of driver-cum-crew cabin. A 10.5 m aluminium Trussed type extension ladder shall be mounted on suitable gallows fitted with rollers and designed to facilitate easy and quick removal of the ladder from the rear of the appliance. **2.9.10 STABILITY** The stability of the appliance shall be such that when under fully equipped and loaded conditions (but excluding crew). If the surface on which the appliance stands is tilted to either side, the point at which overturning occurs is not passed at an angle of 27 ½° from the horizontal. **2.9.11 WORKMANSHIP AND FINISH** The standard of workmanship and finish of all mechanical and other parts shall be such that the parts normally required to be replaced can be supplied and will fit in correctly.

2.9.11.1 Painting

- The complete structure material shall be treated for anti corrosion by Zinc Plating. The plating thickness shall not be less than 20 microns. Two coats of Epoxy paint shall be applied to the completely welded structure.
- The complete external and internal aluminum paneling of driver cum crew cabin and rear body shall be painted with two coats of Zinc Chromate paint.
- The complete exterior of the vehicle shall be painted with two finish coats of "POST OFFICE RED" polyurethane paint manufactured by ICI Dulux / Nerolac / Dupont or similar brands.
- The internal painting of cabin lockers etc. shall be done with two coats of Grey Synthetic enamel paint made by ICI Dulux / Nerolac / Dupont or similar brands.
- The name of the fire service/organization shall be painted on both sides of vehicle in letter of suitable size in golden yellow paint with black color shading.
- The "EMBLEMI" of the department shall be painted on both sides of vehicle in natural colors at suitable place.

2.9.12 INSTRUCTION BOOK AND ACCESSORIES

2.9.12.1 Instruction Book

- Instruction book(s) for the guidance of the user, including both operating and normal maintenance procedures, shall be provided. The book(s) shall include an itemized and illustrated spare parts list, giving reference to all the wearing parts.

2.9.12.2 Accessories

The following accessories shall be provided in addition to these 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. **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. Equipments as per Annexure-1 shall be supplied and stowed in ERT at suitable location in compartments and lockers. MARKING: shall be done as per our choice / norms. DRAWING FOR APPROVAL: dimensional general arrangement drawing of views, cross sections, layout of various main equipment / accessories, technical parameters shall be submitted with tender. **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. **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 workshop.

Annexure-1

List of Accessories / Equipments to be carried on the Rescue Tender

Sl. No.	Item	Quantity
1.	**Self- Contained Breathing apparatus:** 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. • 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 13.00 kg. • Back plate (body harness): Anti-static back plate made from glass-filled polyamide material for resilience and impact resistance, with carbon fiber for strength fitted with a rubber shocker at the base. It shall be ergonomically designed with minimum two integrated molded carrying handles. • Face mask: 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. • Air cylinder: The air cylinder shall have a minimum water capacity of 6.8 liters and free air capacity of min 2040 liters when filled at a pressure of 300 bar. • Valve to be in line type &complied in accordance to EN/ISO/BIS standard. • The cylinder shall be aluminum 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) • Pressure reducer: The set shall be supplied with a small, light, sturdy and encapsulated, high air delivery pressure reducer valve which directly be	4 sets

				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. • LUNG DEMAND VALVE (LDV):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. • Mechanical pressure gauge: 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. • Hoses: 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 It should have accessories like mechanical pressure gauge, hoses, rescue hood and smoke hood.	
			2.	**Chemical Protective suits 'A' type** **<u>Chemical Suit:-</u>** Fully encapsulated, vapor-protective suit (Level A), expanded back, sealed seams inside and out, 48" zipper, double storm flap with Velcro®, 2 layer face shield (10 mil Teflon®/40mil PVC), 3 layer glove combination of Butyl®, North® Silver shield® and outer knit Kevlar®, 2 Pirelli® valves, attached sock boots with boot flaps, 1.5" waist belt with 3 belt loops sewn (inside) and sealed. Storage bag included. This garment offers Level A protection.	4 nos.
			3.	Chemical Protective suits 'B' type	4nos
			4.	**<u>Fire entry suit :-</u>** "Fire entry suit" shall be designed for the purpose of safety extinguishing fires that occurs during hazardous situation with a capacity to handle fire up to 1093º C temperatures. The suit consist of a coat with long sleeves, a double storm fly front, a pouch to carry the cylinder for the breathing apparatus, pants, a hood, boots and gloves, all constructed with multiple layers the garments that make of the fire entry suit are all stitched using superior quality DuPont 4-ply Kevlar thread. It shall be usually provided with adjustable strap while the pant hood can be kept in the built-in shell. In order to provide thermal	2 nos

				protection to the eyes, the fiber glass helmet has tempered glass and two gold plated lenses. The boots that accompany the suit are fitted with oil and hit resistant soles thus providing a fire fighter with complete security from any kind of fire related danger. ● The visor of the hood is made from mica and tinted polycarbonate. The helmet is manufactured using IS-2745 standard fiberglass helmet and attached with two elasticized straps for a better grip. ● The material technology, design, construction and workmanship should be certify to EN 1486. ● The suits outer material has a special aluminization technology called Dual Mirror which enables a much better radiant heat reflection compared to conventional aluminized fabrics. The base fabric is a knitted virgin, para- aramide that is extremely light in weight. ● The second layer is a moisture barrier which prevents water penetration. ● The third layer, i.e. the thermal barrier, consists of an Aramid/ Viscose FR inner lining quilted to two layers of inherently flame retardant felt. This to-layers felt enables more air to the trapped between the layers causing much better insulation against heat. ● Weight: - It should be 9 Kg to 10 Kg with boots (without SCBA and carrying case.) ● Garment layer:- • Outer shell - Dual mirror Aluminized knitted KEVLAR fabric. • Moisture Barrier - FR non woven with PU membrane. • Heat Barrier - 2 layers of FR felt. • Inner lining - Aramide/ Viscose FR. • Sewing thread - 100% Kevlar dual mirror.	
			5.	**<u>Fire proximity suits</u>** - The suit should be a two piece design (Jacket & Trouser) garment and should have an	2 sets

				outer layer made of Inherent FR material followed by a Moisture Barrier and Thermal Liner (three layers minimum). It should have FR reflective tape on both garments for reflection in dark / smoky environment. Should be CE marked and certified to EN-469 standard. Should be supplied complete with a Multi Layer Fire Fighter Gloves CE marked and certified to EN659 standard; a Balclava Style Hood made of Inherent FR material – CE marked and certified to EN-13911 standard; A pair of Fire Fighter Gum Boots made of FR Rubber or Leather with pull-up loops, Steel Toe, Mid-Steel Sole. Boots should be CE marked and Certified to EN-345-2 standard; A Fire Fighter Helmet with visor and Neck Protector, CE marked and Certified to EN-443 standard.	
			6.	Oxy-acetylene cutting set, complete with 5 l cylinders or equivalent and 10 m lengths of tubing, portable or trolley mounted	1 set
			7.	Oxygen cylinder, spare	1
			8.	Gauges for oxy-acetylene cutting plant, spare	1
			9.	Leather gloves **Hand Gloves (Ordinary working)** The shell should be made of 10-gauge poly cotton coating material should be natural. Rubber latex finishing should be palm coated. Cuff Style should be knit wrist Length should be 220-260 mm colour of the shell should be grey and the coating should be in blue sixe availability: 7-10.It should be washable.	2 pairs
			10.	Goggles dark glasses	4 pairs
			11.	Chain tackle 2 tons (Chain pulley block)	1 set
			12.	**<u>Tarpaulin 12 ft X 12 ft:-</u>** a)Size :-12 meter x 12 meter, b) Material:- Made of water proof canvas cloth, its edges should secured by stitching a strip of similar cloth or otherwise of 1" width along the periphery of Tarpaulin. c) Color – Green/ Navy blue, BIS Specification – 1,. Basic fabric: shall be made from cotton duck or cotton canvas. Common proofing shall be prepared with the ingredients consisting essentially of paraffin wax, a suitable pigment and aluminum serrate. Resistance to microbial treating with suitable rot- proofing agent. 4. Sweating test- The common proofed canvas/ duck shall not stain the blotting paper when tested as prescribed Braking strength not less than 90% of specified value prescribed for the basic fabric. (IS: 2089-1977)	2 nos.

		13.	**Lifting and Pulling machine** Manufactured as per IS:5604-1970 for aniversal gearless hand operation pulling and lifting machines. • Weight (approx) – 17 kg • Dimension (approx) - 60 x 30 x 15 cm • Capacity (SWL) lifting – 1.5 tons • Capacity (SWL) pulling – 2.6 tons • Length of telescope handle (approx) – 65/108 cm • Effort (approx) – 50 kg • Diameter of rope (approx) – 11.3 mm • Weight of rope (approx) – 0.548 kg/m • Breaking load of rope (approx) – 9 tons • Length of rope (approx) – 20 meters • ISI marked	1set
		14.	Portable, electrically operated, circular saws, 220 – 250V, single phase min 2500 W, 4500 RPM, with Disc Diameter max - 300 mm [12"], Arbor size - 22.2 mm, Weight – not more than 12kg, With soft start technology built in within electronic control box, Diamond Tip Blade of 12‖ dia, 5000 RPM, Arbor size - 22.2 mm, Thickness - 3.5mm – 2 Nos and Composite Blade of 12‖ dia 5000 RPM, Arbor size - 22.2 mm, Thickness - 3.5mm with a set of 5 blades having capability of cutting various material such as Rails, Aircraft alloys, vehicle panels, metal roller doors, wooden frames, etc.	1 no
		15.	Portable, electric drill with different size drill bits Electric Drill Machine: • 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	1 set
		16.	Engineer's tools kit	1 set
		17.	100 ft long 16 mm dia BOB rope	2 lengths

		18.	40 ft long 12 mm dia BOB lashing lines	2 lengths
		19.	20 ft long 10 mm dia BOB rope	1 length
		20.	100ft long 5/8 inch dia wire rope	1 length
		21.	Hardwood blocks, assorted from 75 to 225 mm thick and 300mm	6 nos
		22.	**Spades:-** Spade should be rectangular shape with provision to incorporate wooden handle. The material used for fabrication should be iron of suitable grade (Reputed Make).	2 nos
		23.	Shovels (see IS 274 (part 1 and 2): 1981	4nos
		24.	Mattock, handle	2nos
		25.	Picks with handle see IS 273; 1973)	6nos
		26.	**Crow bars,** • Size/ length- 36” • Diameter of rod- 1” • 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. **The item must be from reputed make**	4 nos
		27.	Sledge hammer 10 kg (see IS 841:1968)	2 nos
		28.	Hammer, 5 kg (see IS 841:1968)	2 nos
		29.	Rake, 3 prong (see IS 5991:1971)	2 nos
		30.	Rubber, gloves tested to 25,000 volts (see IS 4770:1968)	2 pair
		31.	Shears, bolt cropper, large with handle, 900 mm	2 pair
		32.	Shears, bolt cropper, small with handle 600 mm	2 pair
		33.	Fire mans Axe with carrying pouch	2 nos
		34.	Electric drill with spare bits Battery operated 2 mm to 10mm (rechargeable)	1 no.

		35.	**Circular saw with diamond blade** **<u>Circular saw:</u>** ▪ 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 17kg. ▪ 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 l00 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.	1 no.
		36.	Chipping Hammer impact rate - 0-1400per/Min, Single impact force -38 -42 J min, Power input -1240 Watt, single phase 230 volts, Light in weight , shock proof body with required accessories, Less than weight 18 kg,With pointed and flat bit	1 no
		37.	Smoke blower & exhauster Exhaust pipe - 300 mm dia, flexible of 5 meter long. Motor 0.75 HP 2200 RPM, single phase, 230 volt. It should work on both side one for throwing Air out & other is for sucking the Air in from out side. Flexible pipe should be foldable type with wire core made from abrasion resistant material. The close size 1 meter max. and the extended size shall not be less than 5 meter. Preferable yellow or any other bright color.	1 no.
		38.	Electrically operated chain saw Electric Chain Saw: 2 nos Chain saw wood cutting (Electrical) single phase AC/DC	2 nos

				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.	
			39.	Petrol engine operated chain saw Chain saw one man operated: Petrol driven portable power saw having 2 stroke petrol engine displacement minimum 85cc & engine power minimum 6.3hp. 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”. Dry weight of Power saw without Guide bar and chain should not be more than 7.5kg, 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).The spares of the chain saw including chain and guide bar shall be new and unused and manufactured by OEM. 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. 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.	1 no.
			40.	Concrete Breaker having power input of not more than 1400 W, Impatc rate 42 joules, full load impact 1400 / min, bit shank size 30 mm hexagonal, weight not more than 17 kgs with accessories like carrying case, bull point and hexagn bar wrench m8 size.	1 no.
			41.	Diesel engine operated Portable generator 5 kva Engine: Direct injection naturally aspirated, Air-cooled engine, Single cylinder, 4 stroke diesel engine, confirming to ISO 3046 / BS 5514 has the following specifications: BHP: 8 (Min.) Governing System: Mechanical Starting System: 12V DC, 32Ah (min.) battery to start the	1 no

				12 V DC electrical starter motor. Noise Level: <75 dBA Alternator: Confirming to the standard BS-5000/ IS-4722 or equivalent standard. Power Rating at rated RPM-3000: 5 KVA/ 4 KW Power factor (Lagging): 0.8 Frequency: 50 Hz Voltage: 230-240V AC, 1Phase Class of Insulation: H Acoustic enclosure– Powder coated, weather proof Canopy. 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.	
			42.	High pressure pneumatic lifting bags Lifting Bag: 1. The Pneumatic Lifting Bags should be portable and lightweight, and should be in set form, consisting of bags, hose assembles, 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 totaled 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. • 20 to 22 tons • 35 to 38 tons • 52 to 55 tons • 85 to 88 tons • 95 to 98 tons 3. Each set will be provided with the following accessories to operate all bags at a time:- • 10 inflation hoses 5 m long in five different colours (two each) with push lock couplers.	1 set

				• 10 inflation hoses 10 m long in five different colours (two each) with push lock couplers. • 5 dual control box/unit (Plastic Box), 12 bar, • 5 single control units, 12 bar • 5pressure reducers for air cylinders 200/300 bars. • 10 shut of houses with safety valve and 0.3 m hose • 5 compressed air cylinder 300 bar, 5 to 6 litres • 4 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. 7. Operating temperature – 20 to 50 degrees centigrade. Standards:- Equipment must conform to DIN EN 13731 standards for LIFTING BAGS and certifications will be submitted with tender.	
			43.	Jumping Air cushions type as per specs given below The jumping rescue cushions should have high reliability and shall be easy to handle and shall be capable of being fully erected by 4 to 6 persons. The possible jumping height shall not be less than 30 mtrs. It shall have illumination for night operations and shall be capable of being used in dusty conditions. The detailed technical specifications are as under:-	

Shape	8 corner shape (octaganol)
Outer Dimensions	Not less than 5.50 X 5.50 mtrs
Usable jumping area	Not Less than 4.50 X 4.50 mtrs
Jumping angle (30m height)	9.74°
Tube diameter of the inflatable frame	22 cm (0,22 meters)

				Material of frame	Natural rubber reinforced with polyester fabric 940 dtex, black	
				Material of outer cover	Fire retardant special PVC-coated polyester fabric, orange	
				Material of jumping area	Fire retardant special PVC-coated polyester fabric, white with black markings	
				Compressed air cylinders	2 x 6l/300bar or equivalent steel cylinders	
				Erection time	Not more than 75 sec. (depending on the used cylinders)	
				Re-erection after a jump	Not more than 10 sec.	
				Weight of the complete device (with charged cylinders)	Not more than 150 kg	
				Packing	It Shall be packed in a	
			44.	Leak sealing bags		1 set
			45.	Hydraulic Spreader 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. Maximum spreading force shall not be less than 150 KN, minimum pulling force shall not be less than 45 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 / NFPA or equivalent certified, the certificate should be enclosed with the offer. Accessories: 1. spare tip - 1 sets, rechargeable battery with charger- 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. 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		1 no

				rectifier from 110/ 230 V AC compatible to DC battery 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. Pulling chain set- 1set Standard: Required necessary certification must be provided with offer.	
			46.	Hydraulic Cutter Equipment shall be tested for safety according to EN 13204 (European standard) / 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. • The equipment shall be able to work without failure in heavy dust, high humidity, heavy tropical rain conditions and temperatures from -25°C to +55°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. 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. • The cutter shall have curved design blades with the highest 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. • 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 (1G,2G,3G,4G,5G)	2 nos

				Classification according to NFPA " A7 / B7 / C7 / D 7 / E 7 Certificates must be provided with the offer. Accessories Rechargeable Battery • 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. Electric Power supply cable The electric power supply cable shall be equipped with : • 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. Spare Blades - 1 pair	
			47.	**<u>Hydraulic Combi Tools</u>** 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. 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	2 nos

				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. Accessories: 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 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. Pulling chains and pulling adaptors should be supplied with the tool. Standard: Required necessary certification must be provided with offer.	
			48.	Hydraulic Telescopic Ram as per the following specs Spreading force of 1st plunger – not less than 20 Ton Spreading force of 2nd plunger - not less than 8 Ton, Length retracted including cross head – less than 600 mm Total Length including cross head – not more than 1300 mm, Stroke of 1st plunger - not less than 375 mm Stroke of 2nd plunger - not less than 350 mm It should have rotating cross head for easy positioning & perfect grip in every positioning, accurate spring return to neutral position, maximum rotation to the right and to the left only 22 degree, full protection against overload, with all accessories like maintenance kit. The equipment & accessories should be new, unused and should conform to latest design and specifications. The tool should have only 1 quick coupler directly connected to the tool without hoses	1 no.
			49.	Rescue Ram as per the following specifications :-	1 set.

				Minimum spreading force - 16 Ton, Minimum length retracted including cross head – less than 1000 mm, Maximum length including cross head - less than 1750 mm Pulling force not less than – 5 tons, Stroke - min 2 X 325 mm, No. of Plungers – 2 It should have rotating cross head for easy positioning & perfect grip in every positioning, accurate spring return to neutral position, maximum rotation to the right and to the left only 22 degree, full protection against overload, with all accessories like a maintenance kit. The equipment & accessories should be new, unused and should conform to latest design and specifications. . The tool should have only 1 quick coupler directly connected to the tool without hoses	
			50.	Hydraulic light weight aluminum jack as per the following specifications :- Lifting Capacity - Not less than 50 tons Closed Height - Approx 150 mm Stroke - Approx 50 mm Weight - Not more than 7.5 kg	1 no
			51.	Hydraulic light weight aluminum jack as per the following specifications :- Lifting Capacity - Not less than 50 tons Closed Height - Approx 200 mm Stroke - Approx 100 mm Weight - Not more than 9.5 kg	1 no
			52.	Hydraulic TOE jack with accessories - It should be Single acting hydraulic tool suitable for lifting heavy vehicles; trams or machines to free victims or objects that are trapped after an accident.	1 no
			53.	Hydraulic door opener complete with a 2 stage hand	1no

Max. centric force on the saddle :	not less than 11 tons
Max. force on toe :	not less than 9 tons
Closed height :	not less than 440 mm
Extended height :	not less than 685 mm
Weight :	not more than 21 kg

				pump. The spreading force shall not be less than 9 tons and the stroke shall not be less than 125 mm. A swiveling type connection with 30 cm long hose shall be provided.	
			54.	Hydraulic Pedal cutter shall have straight blades, one fixed and one moving, with a cutting force of at least 75 kN (7.7 ton). It shall be suitable to cut metal parts like car pedals, steering wheels, seat frames etc The opening in the jaw shall be at least 40 mm, whilst the width of the jaw shall be no more than 40 mm to use the cutter in confined spaces. It shall have a 360° rotation elbow, 30 cm pigtail hose and quick coupler	1no
			55.	Hydraulic pump for 2 tools simultaneous operation with 15 mtrs long hose as per the following specifications :- Engine - Petrol engine Capacity oil tank (effective / usable) - Not less than 3.6 litres Pump type - 2 stage radial pump Weight - Not more than 25 kgs No. of tools connected - Two No. of tools to be operated simultaneously – Two	2 no
			56.	Hydraulic foot / hand operated pump mounted on suitable base plate with 10 mtrs long hose. The pump shall have two-stage operation and shall be capable of developing adequate pressure for operating all the tools including the telescopic ram upto their full capacity	1 no
			57.	Coaxial hose having pressure line inside the return line for use with the hydraulic tools 10 mtrs long orange and blue color – 1 each	2 nos
			58.	Hose reel with 25 mtrs long high pressure coaxial hose having pressure line inside the return line for use with the hydraulic tools	1 no.
			59.	**Power Shoring system** 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	1 set

				• 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 - aluminum. 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 - aluminum. For support against afl at 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 - aluminum. 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 - aluminum. 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 carbine 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. • No hand pump for operating sturts with hydraulic cylinder. • Extension pipe 125mm 1 no. • Extension pipe 250mm 1 no • Extension pipe 500mm 1 no • Extension pipe 1000mm 1 no • Connector 1no.	
			60.	Glass breaker (window punch) short description: Glass Master weight, ready for use kg: 1.0 dimensions (LxWxH) mm: 420 x 245 x 35	1 no
			61.	Evacuation system (rope rescue with tripod and descenders etc) consisting of a Tripod with rope rescue modular evacuation device ratio 3:1. The weight of the Tripod should not be more than 15 kgs and should have 4 point SS anchoring system on the top with Aluminium die cast locking system. All the three sides of the tripod should allow entry of the person without obstacles like chain etc. The load carrying capacity shall be 500 kg and the breaking strength of 1000daN. There shall be 8 adjustable index positioning. A harness shall be provided consisting of 1 Dorsal attachment D ring / 1 Rescue D ring (rear), 2 Lateral attachment D rings, Positioning belt, Fully adjustable shoulder and thigh straps, net weight 1.6 Kg., and Rescue strap with hooks for 2nd person. It shall also have a ascending / descending device of 100 operating range with 400 mtrs braided rope of polyamide material of 9 mm dia. The braking of descending load shall be by the friction of the rope on the drum, while a ratchet gear facilitates ascension Control and Descent Speed. The Permissible Load shall e 250 Kg with pulley reduction ratio of 3:1 The weight of this unit shall not be more than 1.75 kg. A ascending and locking handle made of light alloy shall also be provided with special gear belt for rope rescue and sit harness. A descent control device for mass evacuation from high rise buildings and public places consisting of 32 mtrs. Descent controller with all the accessories The features should include Automatic cable rewind, Self control speed of 1.20 per sec., Equipped with centrifugal brake, Load carrying capacity 150 kg. Metallic casing dully painted and shall have stainless steel cable of 5 mm dia and rescue strap. The weight of the unit shall be about 22 kg	1 set

			62.	Search Camera - <u>Purpose :</u> This victim location system is electronic equipment for location and rescue of trapped victims. With this equipment, light and easy to carry, it is possible to explore the ruins, collapsed structure caused by earthquake, explosions, landslides, construction cave-ins or mine disasters and to communicate with victims via the microphone incorporated in the camera. The system should comprise of a telescopic boom with a camera, able to turn through 360° fixed to the end and connected to a portable control box screen. <u>Capabilities required:</u> • The systems primary configuration should be based on a video camera built at one end of a telescopic boom which can reach out into depths and void spaces up to a distance of 2m. This boom shall be extended telescopically and shall have 4 sections giving a total length of 2m and shall be fitted with minimum 5m of cable. Provision should also be made to manually lock the telescopic boom at the distance required. • The video camera shall have a colour display with a sensitivity of 0.5 lux and shall have 6 white LED lights which will allow visibility in pitch black conditions to a distance of 4 m. The camera head shall be able to rotate 360° without stop (infinitely). A speaker and a microphone shall be built into the body of the video camera, which will allow communication with the trapped person through a head-set. • The system shall have a control box for the operator which will be fitted with a minimum 7-inch, LCD colour screen, TFT active matrix, and shall be stored in a leather protective case with adjustable shoulder strap. • The system shall also be provided with mono headphones fitted with dynamic microphone with anti-disconnection plug which will allow the operator to communicate with the victims via the speaker and microphone built in the video camera. The cable length shall be minimum 1.5 mtrs • There should be provision for attachment of an additional headset for use by a third person like an interpreter or a doctor etc	1 no

				• The system design shall be such that it would not require more than 2 persons to operate, one operator to handle the probe, and the second for the control box: of the probe to see and search through the screen, communicate with victims. • The system shall have an inbuilt battery, 12V - 4.5 Ah battery, Ni-MH technology with an intelligent charger. The battery shall allow minimum 4.5 hours of continuous usage of the system and should be able to be fully charged in 4 hours. The system shall be equipped with an audible alarm which will warn the operator when the battery is low. A suitable Cigar-lighter adapter shall be provided to enable the charge the battery in a vehicle if necessary • An additional water proof camera capable of being used at a depth of 60 mtrs with 60 mtrs cable mounted on reel shall be provided. The camera shall be IP 67 compliant and shall give colour display. The camera should rotate 360 deg. and shall have integrated LED lights. Speaker and microphone shall be integrated in the body of the camera The system shall be capable of being operated in temperature range –10° to +60°C	
			63.	Life detector - The Life Detector should be a hand held instrument designed to quickly locate Living Human Beings from behind barriers – trapped under debris of structural collapse, from buildings in smoke or even stuck under water by detecting electric field generated by human heart or any other human property. The instrument should be able to detect living human beings from far off distances as long as at least 350~400 m in open air and at least from 150~200 m when behind barriers (any type of barrier including multiple layers of concrete slabs, debris, steel structures, mud-landslide, snow-avalanche, under water etc. The instrument should not need any power supply so that it can be used in disaster emergencies. The life detector should not detect any animals or creatures and should be such that its performance should not be affected by presence of other machinery / instruments	1 no
			64.	Acoustic based victim location unit - The equipment is an acoustic listening device, light weight and easy to carry. Designed especially to detect and locate trapped, live victims in collapsed structure caused by earthquake, explosions, landslides, construction cave-ins or mine	1no

				disasters. The slightest noise the victim makes should be detected by this device and so the sensitivity is exceptional. It is fitted with an adjustable filter to deaden the effect of dull noises like pneumatic drills, lorries passing... Capabilities required: **Housing/Amplifiers & filters:** IP66 housing with bar-graph for adjustment with IP 68 connectors. Two very high gain, low noise amplifiers. Two frequency filters "high pass and band pass" infinitely variable, filters activated by 2 keys (the chosen frequency is infinitely variable using the + and - keys) Filter 1: High pass filter" significantly reduces all frequencies below its adjustment point, which may be between 50Hz and 5 kHz which correspond respectively to the low and the high points on the liquid crystal scale. It will eliminate bass sounds such as lorry movements, dull noises... Filter 2: " "Band pass filter" significantly reduces low and high frequencies on either side of its turning point. It will filter an incoming signal. • Sensors: Two ultra-high sensitivity black vibration sensors with 8m of cable - One sound sensor fitted with a microphone and a loud speaker with 8m of cable. • Headset: One stereo head-set with microphone • Batteries: One pack of 6 rechargeable Ni/Mh batteries type LR6/AA (operating life 30h) One accumulator charger (usable at 50/60Hz 100v to 240v) One cigarette lighter charger plug with wire to be use in a vehicle. • **Specifications:** Operating temperature: -10° to +60°C Storage temperature: -25°to +70°C Total weight: 2kg (in use) / 8 kg (with carrying case) • Carrying case: One carrying strap and one shock proof carrying case	
			65.	Loud hailer battery operated	1 no
			66.	Inflatable lighting tower with inbuilt 4 stroke petrol engine	1 no

			driven generator of 1200 VA with 400 watts high pressure Metal halide lamp, inflatable height of 4 mtrs with 2 blowers for balloon inflation. It should be possible to use the unit through AC mains. Weight not more than 45 kg	
		67.	Pipe wrenches 12 inch & 24inch	1 each
		68.	Wrench adjustable 12inch	1 no
		69.	Slotted screw drivers	1 set
		70.	Orange paint can	1 no
		71.	Plywood (Marine grade) 1.25 m X 2.5 m	1 no
		72.	Wood wedges	4 nos
		73.	Search light (Rechargeable) **<u>SEARCH LIGHT.</u>** It must be one piece portable search light fitted with high powered LED lights. The search light should be fitted with Lithium ION battery. Minimum dia 115 mm (±) 5%. The search light should be provided with inbuilt charger for charging up 12V. battery. The maximum charging time should be 8 hours. There should be provision of single push type on/off switch. Its body should be made of super tough glass filled nylon or polycarbonate of minimum 3mm thickness. The spotlight shall have a attachable handle. It should be effective long range type. The firm shall provide warranty for one year on product and the battery.	2 nos
		74.	**Inflatable boat for 10 persons with 40HP (2 stroke) OBM.** Inflatable Rubber Boats made of Nylon / Polyester fabric coated with Hypalon rubber on the outside & polychloropreneinner side, meeting ISO 15372. 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 + 0.5% maximum) Buoyancy Collar Diameter: 0.50 to 0.55 meter,	1 no

				Boat Carrying capacity:- 10-12 persons or 1000kg Cargo Buoyancy Chamber: Minimum 4+1 keel. Floor Board: Marine Grade Aluminum 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 Aluminum 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 Fittings: Life Line- Inside & Outside Towing Hook - 2 Lifting Hook - 4 Carrying Handle - 6 Storage Pocket - 2 Drain Plug - 2 Accessories: Foot Pump (Heavy duty) 2 Anchor - 1 Anchor Rope - 30 mtr Oars - 2 Boat Valise - 1 (Made of tear resistant coated nylon fabric) Repair Kit - 1 Lifebuoy - 2 Life jacket - 10 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. Out Board Motor (Two stroke) 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 Fuel attachment – 1 Set Repair Kit - 1no	
			75.	**BA compressor :** The COMPRESSOR will be a portable High Pressure breathing air compressor used to fill SCBA/SCUBA set cylinders with pure breathable air. ▪ 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 maximum three stages of compression. ▪ Suitable 4 stroke petrol engine of reputed make with rope start ▪ Breathing air quality should be confirming to EN 12021 – 2014. ▪ 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 or one meter long hose with filling adapter for 300 bar (DIN Type) with special provision/adaptor so that same can be used to refill 200 Bar cylinder. 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 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.	1 no

				Required standard certification of National/ International of above equipment for safety shall be submitted with offer.	
			76.	**Thermal Imaging camera** **<u>Thermal Imaging Camera:</u>** 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: • 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 or equivalent standard	1 no.
			77.	Rescue rocket system with sling and line deployment consisting of one launcher, inflatable sling and line projectiles with charging hose & adaptor with 300 ft polypropylene rope and 500 ft Decron 3 mm rope with	1 no.

		rope storage compartment to be used with the launcher along with accessories. The system should be intrinsically safe and should work on Air Thrust technology.

All the equipments provided by the OEM/fabricator shall have to meet all safety standard of EN/BIS/NFPA/UL listed (as applicable).The equipment should have to meet latest regulation and standard. The bidder shall clearly mention the name of the manufacturer against each item.

28	Tractor with Hydraulic Trailer	**TRACTOR with Hood** ENGINE: 42 HP coolant cooled naturally aspirated diesel engine, 3 cylinder (min.), Rated RPM 2000 and above. Transmission: Two wheel drive, 8 or more forward and 2 or more reverse. Hydraulics: Lifting capacity should be more than 1300 Kgf & above at lower link ends. Steering type: power steering Wheel &Tyre: Front-6.0 X 16, 8 PR Rear- 13.6 x 28, 12 PR Wheel Base: 1850 mm or more. Overall length: 3400 mm or more. Overall width: 1800 mm or more Minimum Ground clearance : 410 mm **HYDRAULIC LIFT TROLLEY (TRACTOR TRAILER)** 1. Hydraulic Cylinder: 5 ton capacity, Single acting hydraulic cylinder along with high- pressure pipe with adopters fitted at end. 2. Dimension: Trailer Length – 3200 mm Width – 1830 mm Height -560 mm 3. 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. 4. Side Wall Sheet: M.S Sheet 3.40 mm (min) all side open type on hinges except front one. 5. Floor Sheet: M.S Sheet 6.00 mm (min), 18-Gauge 6. Axle: M S square 75X75 mm (min) or found 80 mm dia (min) The number of axle may be one. 7. Wheel Hub: 02 nos. wheel hub heavy duty of 08 holes with branded wheel bearings. 8. Fittings: 02 No's light reflectors, 02 No's Registration plates, steel hook etc. 9. 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. 10. Painting One Coat of Red Oxide and 2 coats of super synthetic enamel paint.
29	RCC equipment set	Each set consists of Bullet chain saw: 1 No Concrete cutter : 1 No Angle Cutter : 1 No **Bullet Chain saw:-** 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. Two stroke single cylinder air cooled petrol engine with a minimum displacement of 75cc 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. Guide bar length should be minimum 14 inch. 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. It should have suitable provision for setting and adjusting depth of cut. Gross Weight of the equipment with guide bar and chain including fully loaded fuel tank should be less than 12 kg. Sound pressure level at operator's ear should be less than 105 dB (A). Fuel tank capacity should be not more than 1ltr. Brochure and test report should be submitted in accordance to ISO/ CE or any National/International standard for conformity of the specification. **<u>Concrete Cutter</u>** <u>Requirement:</u> Ring type concrete cutter attached with 16 inch dia diamond blade for optimum depth cutting of concrete/RCC as per the following specification: <u>ENGINE:</u> Air Cooled 2 stroke petrol Engine, Pull cord Start with Choke arrangement. The engine should fuel efficient, integrated with advanced carburetor to reduce emissions in comparison to power. Engine Displacement: 81 cc or above. Power developed at rated rpm: 4.0 Kw. or more. Minimum rated RPM: 8500 or more. Fuel tank capacity – 1ltr. (Min.) Dry weight of power cutter with blade: 15 Kg (max.) <u>Cutting Equipment:</u> Type: Ring type cutting blade 1. It should be capable of running 16" (406 mm) dia. ring type diamond blade for concrete cutting. 2. Minimum depth of cutting should be 140 mm. 3. Blade Guard should be having the wheels on it for smooth operations.

		4. Ring cutter periphery should be mounted on the four rollers provided in the machine for smooth revolution. 5. Rollers should be adjustable for ensuring the proper installation of ring in the machine. 6. A suitable arrangement should be provided with the equipment to spray water along with aflow control valve to adjust the pressure of water on the Cutting Ring for heat dissemination and to reduce frequent clogging. 7. Equivalent Noise level shall not be more than 120dB (A). Equivalent vibration level at front and rear handle should not be more than 4.0 m/s^2. 8. Quality test certificate in accordance to ISO/EC or any National/international standard confirming to specification must be attached with the bid. <u>ACCESSORIES TO BE SUPPLIED WITH MACHINE:</u> 1. Three nos. Ring type blade compatible with the above machine (406 mm dia.) 2. 5 Ltr. fuel Container. 3. 5Nos. of spare air filter. 4. 01 no. Battery operated Water tank with 15 ltr (min.) Capacity. **<u>Angle Cutter</u>** ▪ Electric Motor operating in range of 230 volts ±10% power rating with a maximum no load speed of 4900 rpm±10% and full load speed up to 30000rpm ±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
30	10 KVA diesel generator	**Engine:** • Genset Output 10KVA / 8 KW or more • Engine rating at rated RPM 1500 minimum in KW (BHP): 13.2 (18) or more in • Engine Type: Natural Aspirated • Governor: Type /Class of Governing: Mechanical/Electronic • Air cleaner type : Dry • Battery Voltage (DC) / Capacity (AH): 12V,35AH or more • **Fuel System:** • Recommended Fuel: Diesel • Fuel tank capacity (Ltr): 50 or more **Generator:** • Voltage: 415V AC ± 1.5% • Frequency: 50Hz • Current @ 0.8PF (Amps): 43.4/13.9 • Type: Min 2 Pole , Rotating • Insulation: Class H , • Coupling: Flexible disc, CLOSE COUPLED **Standard scope of supply:** **Engine** with direct injection, water/ air -cooled engine, min 2 cylinder, in-line, 4 stroke, rated at 1500 RPM minimum, conforming to **ISO 3046 / BS 5514** has the following

		specifications: **Alternator**: Crompton Greaves/ Stamford/ equivalent • **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 • **Power cables: copper** conductor cables between Alternator & Control panel inside the canopy. • **Literature:** • Operation Manual • General maintenance & installation Guideline • Foundation Drawing • Parts manual
31	Hydraulic platform-cum-Aerial Ladder (ALP) unit- 32 metre	**1.0 SCOPE:** This specification covers a hydraulic platform-cum- aerial ladder (ALP) unit with a working height of 32metre. The design of operational stability, structural strength shall be in accordance with relevant international/national standards and norms available on the subject. The ALP shall be CEN (Central European norms and standards) certified or suitably inspected and certified by any Government of India Agency. **1.1 CHASSIS:** The chassis on which the hydraulic platform is to be mounted shall be of reputed maker such as Mercedes / VOLVO /MAN/ TATA/ Mahindra etc. The chassis shall be of minimum 2 wheel drive and shall meet the pollution norms of EURO–IV / BSIV or latest emission norms. The vehicle shall be right hand drive fitted with power steering. The engine shall have sufficient power to achieve a top speed of 70 km/h on a level ground. The acceleration shall be such that with a warm running engine the fully laden appliance shall attain a speed of 64 km/h from a standing start through the gears. The appliance shall also be capable of being started from rest up a gradient of 1 in 5 when laden. PTO for driving the hydraulic pump shall be a standard feature. The engine shall be six cylinder, inline, diesel with direct injection, turbo charged with inter cooler. The engine shall develop minimum 270 HP power. The gearbox shall be fully automatic/ Synchromesh type with suitable Power Take Off to drive the hydraulic pump. The chassis should have 3 to

		5 axles with fully factory built cabin and suitable capacity PTO. 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 Drum brakes with parking brakes acting on rear wheels. Fuel Tank-Capacity shall be min 300 liters 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 /sleeper cab with crew bench 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 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. **2.0 MAIN OPERATING DATA:** a. Working height - 32 metre b. Height to working cage bottom - 30 metre c. Working outreach (with 400 Kg) - 21 m d. Working reach below the ground level (with 400kg)- 5.0 m e. Safe working load (minimum) - 400 kg f. Rotation, continuous - 360° g. Transport height (maximum) - 4.00m h. Transport length (maximum) - 12.0m i. Transport width - 2.5 m j. Maximum wind velocity - 14.0 m/s

		k. Maximum width with outriggers extended (front) - 6.6 m l. Elevation angle of main boom - from 0º to 80º m. overall width with outriggers - 7.5 mtrs n. Operative rate i. Maximum working height from gallows/resting – 90-120 sec (similarly depression at the same rate). ii. Turning through complete circle – 150 sec. iii. Time to extend jacks on both sides – 30 sec. **3.0 MAIN FRAME:** The main frame shall be welded box section type made from high tensile steel plates and shall absorb all the stresses 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 machined. **4.0 STABILIZING SYSTEM:** The system shall consist of four outriggers mounted in their housing in the main-frame and are hydraulically powered. Adjustable guides in the housing shall be fitted to provide accurate and smooth movement of outrigger beams. The outrigger beams shall be completely closed by steel profile enclosing hydraulic cylinder, hydraulic hoses etc. The vertical jacks shall be fitted with self-aligning footplates so as to distribute the load evenly. The system shall also incorporate use of "ONE SIDED" mode enabling left or right side outriggers only to be extended where as the outriggers on the opposite side remain within the width of the vehicle. The arrangement shall provide full working range on the fully supported side of the vehicle. The entire system shall also incorporate independent and automatically operating safety devices to prevent an unsafe position to be reached. Controls for stabilizing system shall be placed in a dust

		and water proof enclosure at a suitable location with control arranged in such a way that outriggers are always visible to the operator while operating. This enclosure shall also contain control switches such as: i) Chassis engine starting and stopping. ii) Hydraulic pressure activation. iii) Visual indication for fully extended left outriggers / right outriggers/ rear axle locking (if incorporated) / main current on/ leveling of vehicle (longitudinal and transversal). iv) Operating hour meter. v) Indication for fault finding system. vi) Battery driven back up for hydraulic system. vii) Engagement of P.T.O. The enclosure shall have proper lighting for night operation. **5.0 BODYWORK AND EQUIPMENT LOCKER:** The frame shall be made of aluminum covered with non-slip aluminum plates strong enough to allow free movement of persons on it. Recessed steps shall be provided on both side of vehicle for gaining access from ground level. At least two lockers with roller shutters shall be provided on each side along with automatic switches for activating light within the locker when the lockers are open. There shall also be a warning indication in driver's cab that the doors are not fully closed. One of the lockers shall house petrol/diesel driven engine of standby system where as the other lockers shall be used for stowage of fire fighting accessories. **6.0. BOOMS:** The aerial ladder platform shall have two/three booms system. The booms shall be made of high tensile strength steel. The first boom may have telescopic extensions. The 2nd boom shall have vertical movement of 180º. The elevation and lowering of main boom shall be achieved by two hydraulic cylinders, both having their separate safety devices and capable of carrying the entire load alone. Adjustable guides

		shall be provided for smooth and accurate movement and all telescopic section shall be synchronized so as to avoid inter mediate jerks. The booms shall be primed and painted for long life span both internally as well as externally. All movements shall be electro hydraulically servo controlled at optional speed from both the control panels by means of joysticks. When not in operation all control levers will be automatically in neutral position. **7.0 TURNTABLE:** It shall be a fully integrated steel structure fastened to main frame. It shall have a center post containing slip rings with double pins for electrical connections, 75 mm stainless steel /aluminum alloy water way and hydraulic pressure lines allowing continuous rotation of the turntable. The lower control station shall be located on left hand side of the turn table where as the rescue ladder shall be on right hand side. Rotation reduction gear with automatically operating braking system shall be installed at the front of the turntable. In order to have high reliability, the hydraulic motor powering the rotation shall be directly connected to the gears. **8.0 WORKING CAGE:** The working cage shall be made of tubular steel profile, welded construction, having dimensions as - length 2.0 m, width 1.0 m and height 1.1 m. This shall be fixed to the booms providing highest possible degree of natural safety. The cage shall be fitted with two doors. The safe working load shall not be less than 400 kgs. when no water is discharged from the monitor and not less than 300 kgs with monitor in operation. The working cage shall be kept leveled horizontally w.r.t. any position of the booms. The leveling movement shall be powered by hydraulic cylinder within the boom. The cage shall be capable of being turned 45º on either side from the center position. The movement shall be powered by hydraulic cylinder having control both at cage and turn table. Visual indication for center position of the cage shall also be incorporated at both control panels. A rescue platform with approx. dimension 1.4 m × 0.45 m and safety railing shall be fixed at the front of the working cage. A fully transistorized talk back intercom system shall be fitted between turntable and the cage. Combined microphone and loudspeaker with hand free

		operation shall be located in the cage where as the main station shall consist of a loudspeaker and a microphone. Provision for audible warning/ signal shall be incorporated when one of the two positions enters in contact with other one. The entire cage shall be covered with non-slip aluminum plates with drain holes. **9.0 RESCUE LADDER:** A telescopic rescue ladder forming a direct and continuous rescue way with no cross- over platform shall be attached on to the R.H.S. of the booms. The extension movement of this ladder shall automatically synchronize with telescopic movement of 1st boom. Both the control panels shall be fitted with visual indication for "SAFE TO CLIMB" position of the ladder or having automatic rung alignment system. **10.0 HYDRAULIC SYSTEM:** The Hydraulic power shall be provided by a reliable and adequate capacity variable displacement axial piston pump for boom movements and separate pump for cage leveling system to ensure positive cage leveling at all the time even in the case of failure of main 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 pre-set 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, 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 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. There shall be hydraulic oil cooler for continuous use in hot temperature. **10.1 BACK UP SYSTEM FOR HYDRAULIC:** A Diesel engine driven hydraulic pump mounted in one of the lockers shall provide an independent hydraulic power back up in case of failure of vehicle engine. The system shall be capable of starting from both control panels. In addition, a battery driven 24V DC stand by pump as backup system shall also be incorporated to allow all the booms and outriggers movements to be operated for housing purposes in the event of failure of all other systems. **11. ELECTRICAL SYSTEM:** The electrical system shall be 24 v DC from the chassis battery that are kept charged when the engine is running. All electrical circuit shall be provided with fuses. Output sockets for battery supply power shall be provided at turntable and cage. While main current is switched on, yellow flashing warning lights mounted on outriggers, underneath the working cage and booms shall be automatically switched on. Amber color rotating beacons on each side of driver's cab roof shall be provided. The switching controls shall be in the drive's cab. **11.1 SIREN AND PUBLIC ADDRESS SYSTEM:** The electrical siren unit shall be fitted behind the front grill the control panel for the operation of the system shall be in the drivers cab. The sound system shall be fast (yelp), slow (wail) and two tone (Hi-low) sounds. The PA system shall have an overriding facility and the microphone shall be fitted with push to talk switch. Time circuit for change of cycle during auto mode shall be incorporated. **12.0 TURN TABLE AND CAGE CONTROL PANEL:** Control panels shall be provided at the turntable as well as at the cage. A convenient sitting arrangement for the operator shall be provided at turn- table. Both the panels shall be exactly similar to avoid confusion whereas the change over switch for selecting the place of operation shall be at the turntable control. Both the panels shall be fitted with under

		mentioned warning/ indications/ control devices. These shall be clearly marked for easy recognition. i) Audio cum visual warning for exceeding safe working load. ii) Audio cum visual warning for collision guard system of working cage. iii) Visual indication for fully extended outriggers (left and right separate) iv) Visual indication for "Safe to climb" position of rescue ladder or having automatic rung alignment system. v) Start and stop of chassis engine. vi) Switch for gasoline driven and battery driven back up for hydraulic systems. vii) Control for cage slewing. viii) Joystick lever for each movement. ix) Emergency stop switch. x) Manual operation for working cage-leveling system. xi) Visual indication for control position of booms and working cage. **12.1 INDICATORS AND CONTROL IN DRIVER'S CAB:** The following indicators and control shall be incorporated in driver's cab: i) Visual warning for switching on of main current. ii) Visual warning for booms and outriggers not in traveling position. iii) Visual indication for any of the locker not in closed position. iv) Visual indication for engagement of P.T.O. **13.0 SAFETY DEVICES:** I) To prevent the booms, cage, outriggers from retracting in case of any hose or pipe failure. All load bearing hydraulic cylinder shall have lock valves. II) The booms shall be prevented from lifting from traveling position until the outriggers have been

		extended. III) Retracting of any of outriggers shall be automatically prevented once booms are lifted from their traveling position. IV) Movement of all booms shall be limited to their extreme so that the operator cannot attain an unsafe configuration. V) All movements which directly influence the stability shall be protected by main as well as backup safety system in such a way that the first one stopping a particular movement and 2nd one deactivating the whole hydraulic and electrical system in case of failure of 1st system. VI) Device for preventing the chassis engine from starting from either of control panel unless the gear is shifted to neutral. VII) Slow down devices shall be fitted to provide smooth deceleration. VIII) Audio and visual warning in case of safe working load being exceeded. IX) System for preventing lowering of 1st boom and rotation movement when the boom is near the drivers cab. X) Collision guard for cage. XI) Emergency stop switch on both control panels for freezing all systems. XII) R.P.M. regulation switches of vehicle engine at main control panel. XIII) Bleed down system at both the controls for lowering booms and working cage in case of failure of hydraulic system. In such and case, provision of manual rotation is provided. **13.1 BODY WORK AND EQUIPMENT LOCKERS** The structure for the bodywork shall be made up of various Aluminum / stainless steel profiles properly fixed

		together by riveting, bolting or welding. The complete external paneling of the rear body shall be made from Aluminum sheet fitted to the structural member either by gluing or riveting. The complete flooring of the rear deck shall be made from nonskid aluminum chequered plate of 3.0 mm thick 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 numbers 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 the light as soon as the door is opened and also activating the warning light in Drivers cab. There shall be a bench type crew seat suitable for 5 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. **14.0 WATER WAY:** A 75 - 80 mm diameter water way made of stainless steel/ Aluminum alloy of proper grade and strength shall be provided throughout with three way inlet having 63 mm male instantaneous coupling with closing valve at the rear of the vehicle. The line leads through the center post in the turntable up to working cage. All along the boom the piping shall be fitted at R.H.S. at protected position between rescue ladder and the boom. The continuous rotation shall be provided even when the water supply is simultaneously used. Relief valves shall be incorporated for protection against overpressure. All along the boom the water pipe shall be telescopic. At boom joints there shall be fixed an access pipe connected by a flexible rein-forced pressure hose using snap lock connections. The piping shall terminate at side of the front cage where a water monitor shall be placed. An additional outlet of 2½ " female instantaneous outlet along with closing valve shall be provided so that water supply from cage can be used by using an extension hose. Drain cock shall be fitted at suitable locations. Underneath the cage water spray nozzle shall be fitted to provide water curtain to prevent cage occupants from the radiant heat. Control valves for this shall be located inside

		the cage. All couplings at inlet and outlet shall be in accordance with relevant Indian standards. **14.1 WATER MONITOR:** Water monitor made of light alloy fitted with jet/fog nozzle having a nominal capacity of 3000 liter per minute shall be connected on to the water piping system and placed at front of the cage just outside the railing. The monitor shall be capable of normal control from cage and platform and also having a provision of remote control. Main isolating valve shall be provided for isolating the monitor. **15.0 BREATHING AIR SYSTEM:** A breathing air system shall be provided from turntable to working cage. At the cage, there shall be a four way manifold with instantaneous coupling to connect four breathing masks. Air cylinders to supply air shall be mounted at the turntable level. The cylinder capacity shall be such that they provide approx. 9000 liters of free air. Isolation valve shall be provided at suitable location so that the cylinders can be changed without interrupting the air supply. Pressure regulator as required shall also be incorporated into the system. 04 number of suitable facemask shall be supplied. **16.0 STRETCHER CARRIER:** Provision for stretcher carrier shall be made at the working cage. The carrier shall be provided in such a way that whole cage area is still available free to its occupant. **17.0 FOG LIGHTS:** Two fog lights shall be mounted at front bumpers or other suitable locations and controls provided in the driver's cabin. **18.0 PAINTING:** Surfaces of steel structure shall be sand blasted, primed before painting and painted to a film thickness of 50-100 microns. All booms shall be primed from inside also. The paint used shall be as under:

a. Working cage - white aluminum.

b. Working cage support, booms sections, turntable, cylinders etc. - white

c. Main frame, outriggers, body work - red

19.0 WIRELESS CAMERA:

A detachable and self-contained battery powered video camera with zoom and focus facility shall be mounted at a suitable position in the cage. A color monitor shall be mounted at the turntable and a color monitor with recorder in the driver's cab. The transmission of picture from camera at the cage to the monitors shall be through radio signals. The system shall be capable of switching on and off from the cabin, Camera and the monitor shall have a waterproof design. All functions of camera shall also be capable of being operated from the turntable also.

20.0 GRAPHIC DISPLAY FOR TURN TABLE AND CAGE CONTROL STATION:

A graphic display unit shall be installed at the turntable and at working cage. This unit shall inform the operator about the actual position of the cage and display information's as per under:-

a. Real cage floor height / maximum cage floor height.

b. Real outreach at cage border/ maximum outreach at cage border.

c. Real angle of main boom.

d. Real angle of tip boom.

e. Warning signal for cage overload.

21.0 COMMUNICATION EQUIPMENT:

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.

22. ACCESSORIES:

The following shall be provided:-

i) 4 pc Wooden/steel outrigger ground pads with bracket

ii) 2 pc Working range diagrams, one at the turntable, one in the working cage

iii) 2 set Operation and maintenance manuals

iv) 1 pc Plug for 24 v working light at the turntable and in the cage

v) 1 pc 24 v/ 70 w working light with universal bracket

vi) 1 pc Lifting loop under the working cage, capacity 400 kg.

vii) 5 set Fitment for safety belts in the working cage.

viii) 2 pc Hydraulic pressure gauge.

ix) 4 pc Locking pins for the outriggers

x) 1 pc Stretcher

xi) 1 no. Microprocessor based fault location with display facilities for the ALP shall be installed at suitable location.

xii) 1 set Set of tools and accessories required for the repair and maintenance of ALP chassis and other systems

23.0 CHECKS AND TESTS AT MANUFACTURER'S WORKS

23.1 During manufacture and especially prior to shipment/ dispatch, verification and checks shall be carried out in order to ensure that the supply is according to the specifications and approved design documents. This shall be carried out at manufacturer's premises by a team of five persons (Fire Officer, 2 Engineers & 2 Sr. Administrative officials) persons to be nominated by the purchaser. The checks shall include:

- a functional check of all equipments,
- check of a vital dimensions as per designs
- check on assemblies, welds, screws etc.,
- a check of operation of safety and protection

devices

All expenses in this regard shall be borne out by the supplier.

23.2 AT SITE:

After delivery at site, the operating tests shall be carried out at site in presence of representatives of the supplier to check that the equipment fulfils the requirements of the specifications these shall include all tests carried out in the factory as well as additional tests with actual use.

24.0 TOOLS:

Tools kits shall be supplied along with the supply for all the equipment and machines as per manufacturer's recommendations

25.0 DOCUMENT SUBMISSIONS:

25.1 FOR EXECUTION OF WORK:

Prior to manufacture of the component, a Contractor shall send the following documents for approval :

General drawings, detailed assembly drawings and detailed drawings of mechanical parts,

- Descriptive and operating note,
- Documents, drawings, notes and references of the Sub-Contractors
- Details of the provisions concerning personnel safety and use of apparatus in hazardous areas.
- Details of service engineers available with the supplier for providing after sale repair and maintenance work. The capacity of the firm for providing after sale services will also counted for placement of supply order.
- Details of service to be offered during the warranty period. It should be clearly mentioned about whether spare part charges be claimed during the warranty period.

25.2 AT COMPLETION OF WORK:

The Contractor shall provide up to date documentation including:

- The list of general drawings and detailed drawings of electrical and electronic diagrams with complete nomenclature.

		• General nomenclature of supply including the sub-contractors • List of mechanical and electrical parts illustrated and itemized in accordance with the diagrams and drawing mentioned above and including the addresses of various contractors. • Maintenance manual with details of maintenance schedules and repair procedure for important equipment, summary of circuits, functions and adjustments and a lubrication manual including location of lubricating points, type of lubricants, frequencies and quantities. • An operating manual with instructions for starts up and users instructions • Complete documentation of equipments from sub-contractor • Spare part list with quantities for five years after handover of the ALP, anticipated frequency of replacement and prices with a one-year validity period. • Instructional plates (in English) shall be provided for all controls. **26.0 TRAINING:** The supplier shall provide the training for 5 working days to 4 personnel to be nominated by the purchaser on the operations and Maintenance of the ALP at the manufacturer's site, preferably, on the same ALP that is to be supplied. All expenses in this regard shall be borne out by the supplier. Training shall also provided by the Supplier to 10 personnel in Odisha after the installation, testing and commissioning the equipment in Odisha. **27.0 WARRANTY:** Notwithstanding anything contained in the special conditions of the tender notice the equipment should bear a minimum warranty period of 4 years. If during the warranty period the equipment required major repair then it shall be replaced by new one of same model or higher. 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.

		28.0 SPECIAL REQUIREMENT- ESCAPE CHUTE: The cage should also be able to hold an Escape chute of 32 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.
32	Hydraulic platform-cum-Aerial Ladder (ALP) unit- 42 meter	**1.0 SCOPE:** This specification covers a hydraulic platform-cum-aerial ladder (ALP) unit with a working height of 42 meter. The design of operational stability, structural strength shall be in accordance with relevant international/national standards and norms available on the subject. The ALP shall be CEN (Central European norms and standards) certified or suitably inspected and certified by any Government of India Agency. **1.1 CHASSIS:** The chassis on which the hydraulic platform is to be mounted shall be of reputed maker such as Mercedes / VOLVO / MAN / TATA / Mahindra etc. The chassis shall be of minimum 2 wheel drive and shall meet the pollution norms of EURO–IV / BSIV or latest emission norms. The vehicle shall be right hand drive fitted with power steering. The engine shall have sufficient power to achieve a top speed of 70 km/h on a level ground. The acceleration shall be such that with a warm running engine the fully laden appliance shall attain a speed of 64 km/h from a standing start through the gears. The appliance shall also be capable of being started from rest up a gradient of 1 in 5 when laden.PTO for driving the hydraulic pump shall, be a standard feature. The engine shall be six cylinder, inline, diesel with direct injection, turbo charged with inter cooler. The engine shall develop minimum 270 HP power. The gearbox shall be fully automatic/synchromesh type with suitable Power Take Off to drive the hydraulic pump. The chassis should have 3 - 5 axles with fully factory built cabin and suitable capacity PTO. 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 liters 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/ sleeper cab with crew bench with RED color, 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 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. **2.0 MAIN OPERATING DATA:** a. Working height - 42metre b. Height to working cage bottom - 40metre c. Working outreach (with 400 Kg) - 21 m d. Working reach below the ground level (with 400kg)- 5.0 m e. Safe working load (Minimum) - 400 kg f. Rotation, continuous - 360° g. Transport height (maximum) - 4.00m h. Transport length (maximum) - 12mtr maximum i. Transport width - 2.5 mtr maximum j. Maximum wind velocity - 14.0 m/s k. Maximum width with outriggers extended (front) - 6.6 meter maximum l. Elevation angle of main boom - from 0º to 80º m. Overall width with outriggers - 7.5 mtrs l. Operative rate i. Maximum working height from gallows/resting – 90-170 sec (similarly depression at the same rate)

ii. Turning through complete circle – 150 sec.

iii. Time to extend jacks on both sides – 30 sec.

3.0 MAIN FRAME:

The main frame shall be welded box section type made from high tensile steel plates and shall absorb all the stresses 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 machined.

4.0 STABILIZING SYSTEM:

The system shall consist of four outriggers mounted in their housing in the main-frame and are hydraulically powered. Adjustable guides in the housing shall be fitted to provide accurate and smooth movement of outrigger beams. The outrigger beams shall be completely closed by steel profile enclosing hydraulic cylinder, hydraulic hoses etc. The vertical jacks shall be fitted with self-aligning footplates so as to distribute the load evenly. The system shall also incorporate use of "ONE SIDED" mode enabling left or right side outriggers only to be extended where as the outriggers on the opposite side remain within the width of the vehicle. The arrangement shall provide full working range on the fully supported side of the vehicle. The entire system shall also incorporate independent and automatically operating safety devices to prevent an unsafe position to be reached.

Controls for stabilizing system shall be placed in a dust and water proof enclosure at a suitable location with control arranged in such a way that outriggers are always visible to the operator while operating. This enclosure shall also contain control switches such as:

i) Chassis engine starting and stopping.

ii) Hydraulic pressure activation.

iii) Visual indication for fully extended left outriggers /

		right outriggers/ rear axle locking (if incorporated) / main current on/ leveling of vehicle (longitudinal and transversal). iv) Operating hour meter. v) Indication for fault finding system. vi) Battery driven back up for hydraulic system. vii) Engagement of P.T.O. The enclosure shall have proper lighting for night operation. **5.0 BODYWORK AND EQUIPMENT LOCKER:** The frame shall be made of aluminum covered with non-slip aluminum plates strong enough to allow free movement of persons on it. Recessed steps shall be provided on both side of vehicle for gaining access from ground level. At least two lockers with roller shutters shall be provided on each side along with automatic switches for activating light within the locker when the lockers are open. There shall also be a warning indication in driver's cab that the doors are not fully closed. One of the lockers shall house petrol/diesel driven engine of standby system where as the other lockers shall be used for stowage of fire fighting accessories. **6.0. BOOMS:** The aerial ladder platform shall have two/three booms system. The booms shall be made of high tensile strength steel. The first boom may have telescopic extensions. The 2nd boom shall have vertical movement of 180º. The elevation and lowering of main boom shall be achieved by two hydraulic cylinders, both having their separate safety devices and capable of carrying the entire load alone. Adjustable guides shall be provided for smooth and accurate movement and all telescopic section shall be synchronized so as to avoid inter mediate jerks. The booms shall be primed and painted for long life span both internally as well as externally. All movements shall be electro hydraulically servo controlled at optional speed from both the control panels by means of joysticks. When not in operation all control levers will be automatically in neutral position.

		7.0 TURNTABLE: It shall be a fully integrated steel structure fastened to main frame. It shall have a center post containing slip rings with double pins for electrical connections, 75 mm stainless steel/aluminum alloy water way and hydraulic pressure lines allowing continuous rotation of the turntable. The lower control station shall be located on left hand side of the turn table where as the rescue ladder shall be on right hand side. Rotation reduction gear with automatically operating braking system shall be installed at the front of the turntable. In order to have high reliability, the hydraulic motor powering the rotation shall be directly connected to the gears. **8.0 WORKING CAGE:** The working cage shall be made of tubular steel profile, welded construction, having dimensions as - length 2.0 m, width 1.0 m and height 1.1 m. This shall be fixed to the booms providing highest possible degree of natural safety. The cage shall be fitted with two doors. The safe working load shall not be less than 400 kgs. when no water is discharged from the monitor and not less than 300 kgs with monitor in operation. The working cage shall be kept levelled horizontally w.r.t. any position of the booms. The levelling movement shall be powered by hydraulic cylinder within the boom. The cage shall be capable of being turned 45º on either side from the center position. The movement shall be powered by hydraulic cylinder having control both at cage and turn table. Visual indication for center position of the cage shall also be incorporated at both control panels. A rescue platform with approx. dimension 1.4 m × 0.45 m and safety railing shall be fixed at the front of the working cage. A fully transistorized talk back intercom system shall be fitted between turntable and the cage. Combined microphone and loudspeaker with hand free operation shall be located in the cage where as the main station shall consist of a loudspeaker and a microphone. Provision for audible warning/ signal shall be incorporated when one of the two positions enters in contact with other one. The entire cage shall be covered with non-slip aluminium plates with drain holes.

		9.0 RESCUE LADDER: A telescopic rescue ladder forming a direct and continuous rescue way with no cross- over platform shall be attached on to the R.H.S. of the booms. The extension movement of this ladder shall automatically synchronize with telescopic movement of 1st boom. Both the control panels shall be fitted with visual indication for "SAFE TO CLIMB" position of the ladder or having automatic rung alignment system. **10.0 HYDRAULIC SYSTEM:** The Hydraulic power shall be provided by a reliable and adequate capacity variable displacement axial piston pump for boom movements and separate pump for cage levelling system to ensure positive cage levelling at all the time even in the case of failure of main 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 pre-set 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, 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 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. There shall be hydraulic oil cooler for continuous use in hot temperature. **10.1 BACK UP SYSTEM FOR HYDRAULIC:** A Diesel engine driven hydraulic pump mounted in one of the lockers shall provide an independent hydraulic power

		back up in case of failure of vehicle engine. The system shall be capable of starting from both control panels. In addition, a battery driven 24V DC stand by pump as backup system shall also be incorporated to allow all the booms and outriggers movements to be operated for housing purposes in the event of failure of all other systems. **11. ELECTRICAL SYSTEM:** The electrical system shall be 24 v DC from the chassis battery that are kept charged when the engine is running. All electrical circuit shall be provided with fuses. Output sockets for battery supply power shall be provided at turntable and cage. While main current is switched on, yellow flashing warning lights mounted on outriggers, underneath the working cage and booms shall be automatically switched on. Amber colour rotating beacons on each side of driver's cab roof shall be provided. The switching controls shall be in the drive's cab. **11.1 SIREN AND PUBLIC ADDRESS SYSTEM:** The electrical siren unit shall be fitted behind the front grill the control panel for the operation of the system shall be in the drivers cab. The sound system shall be fast (yelp), slow (wail) and two tone (Hi-low) sounds. The PA system shall have an overriding facility and the microphone shall be fitted with push to talk switch. Time circuit for change of cycle during auto mode shall be incorporated. **12.0 TURN TABLE AND CAGE CONTROL PANEL:** Control panels shall be provided at the turntable as well as at the cage. A convenient sitting arrangement for the operator shall be provided at turn- table. Both the panels shall be exactly similar to avoid confusion whereas the change over switch for selecting the place of operation shall be at the turntable control. Both the panels shall be fitted with under mentioned warning/ indications/ control devices. These shall be clearly marked for easy recognition. i) Audio cum visual warning for exceeding safe working load. ii) Audio cum visual warning for collision guard system of

working cage.

iii) Visual indication for fully extended outriggers (left and right separate)

iv) Visual indication for "Safe to climb" position of rescue ladder or having automatic rung alignment system.

v) Start and stop of chassis engine.

vi) Switch for gasoline driven and battery driven back up for hydraulic systems.

vii) Control for cage slewing.

viii) Joystick lever for each movement.

ix) Emergency stop switch.

x) Manual operation for working cage-leveling system.

xi) Visual indication for control position of booms and working cage.

12.1 INDICATORS AND CONTROL IN DRIVER'S CAB:

The following indicators and control shall be incorporated in driver's cab:

i) Visual warning for switching on of main current.

ii) Visual warning for booms and outriggers not in traveling position.

iii) Visual indication for any of the locker not in closed position.

iv) Visual indication for engagement of P.T.O.

13.0 SAFETY DEVICES:

I) To prevent the booms, cage, outriggers from retracting in case of any hose or pipe failure. All loads bearing hydraulic cylinder shall have lock valves.

II) The booms shall be prevented from lifting from travelling position until the outriggers have been extended.

III) Retracting of any of outriggers shall be automatically prevented once booms are lifted from their travelling position.

IV) Movement of all booms shall be limited to their extreme so

		that the operator cannot attain an unsafe configuration. V) All movements which directly influence the stability shall be protected by main as well as backup safety system in such a way that the first one stopping a particular movement and 2nd one deactivating the whole hydraulic and electrical system in case of failure of 1st system. VI) Device for preventing the chassis engine from starting from either of control panel unless the gear is shifted to neutral. VII) Slow down devices shall be fitted to provide smooth deceleration. VIII) Audio and visual warning in case of safe working load being exceeded. IX) System for preventing lowering of 1st boom and rotation movement when the boom is near the drivers cab. X) Collision guard for cage. XI) Emergency stop switch on both control panels for freezing all systems. XII) R.P.M. regulation switches of vehicle engine at main control panel. XIII) Bleed down system at both the controls for lowering booms and working cage in case of failure of hydraulic system. In such and case, provision of manual rotation is provided. **13.1 BODY WORK AND EQUIPMENT LOCKERS** The structure for the bodywork 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 Aluminium sheet fitted to the structural member either by gluing or riveting. The complete flooring of the rear deck shall be made from nonskid aluminium chequered plate of 3.0 mm thick 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 numbers 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 the light as soon as the door is opened and also activating the warning light in Drivers cab. There shall be a bench type crew seat suitable for 5 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. **14.0 WATER WAY:** A 75 - 80 mm diameter water way made of stainless steel/ Aluminium alloy of proper grade and strength shall be provided throughout with three way inlet having 63 mm male instantaneous coupling with closing valve at the rear of the vehicle. The line leads through the centre post in the turntable up to working cage. All along the boom the piping shall be fitted at R.H.S. at protected position between rescue ladder and the boom. The continuous rotation shall be provided even when the water supply is simultaneously used. Relief valves shall be incorporated for protection against overpressure. All along the boom the water pipe shall be telescopic. At boom joints there shall be fixed an access pipe connected by a flexible rein-forced pressure hose using snap lock connections. The piping shall terminate at side of the front cage where a water monitor shall be placed. An additional outlet of 2½ " female instantaneous outlet along with closing valve shall be provided so that water supply from cage can be used by using an extension hose. Drain cock shall be fitted at suitable locations. Underneath the cage water spray nozzle shall be fitted to provide water curtain to prevent cage occupants from the radiant heat. Control valves for this shall be located inside the cage. All couplings at inlet and outlet shall be in accordance with relevant Indian standards. **14.1 WATER MONITOR:** Water monitor made of light alloy fitted with jet/fog nozzle having a nominal capacity of 3000 litre per minute shall be connected on to the water piping system and placed at front of the cage just outside the railing. The monitor shall be capable of normal control from cage and platform and also having a provision of remote control. Main isolating valve shall

		be provided for isolating the monitor. **15.0 BREATHING AIR SYSTEM:** A breathing air system shall be provided from turntable to working cage. At the cage, there shall be a four way manifold with instantaneous coupling to connect four breathing masks. Air cylinders to supply air shall be mounted at the turntable level. The cylinder capacity shall be such that they provide approx. 9000 liters of free air. Isolation valve shall be provided at suitable location so that the cylinders can be changed without interrupting the air supply. Pressure regulator as required shall also be incorporated into the system. 04 number of suitable facemask shall be supplied. **16.0 STRETCHER CARRIER:** Provision for stretcher carrier shall be made at the working cage. The carrier shall be provided in such a way that whole cage area is still available free to its occupant. **17.0 FOG LIGHTS:** Two fog lights shall be mounted at front bumpers or other suitable locations and controls provided in the driver's cabin. **18.0 PAINTING:** Surfaces of steel structure shall be sand blasted, primed before painting and painted to a film thickness of 50-100 microns. All booms shall be primed from inside also. The paint used shall be as under: a. Working cage - white aluminum. b. Working cage support, booms sections, turntable, cylinders etc. - white c. Main frame, outriggers, body work - red **19.0 WIRELESS CAMERA:** A detachable and self-contained battery powered video camera with zoom and focus facility shall be mounted at a suitable position in the cage. A color monitor shall be mounted at the turntable and a color monitor with recorder in the

		driver's cab. The transmission of picture from camera at the cage to the monitors shall be through radio signals. The system shall be capable of switching on and off from the cabin, Camera and the monitor shall have a waterproof design. All functions of camera shall also be capable of being operated from the turntable also. **20.0 GRAPHIC DISPLAY FOR TURN TABLE AND CAGE CONTROL STATION:** A graphic display unit shall be installed at the turntable and at working cage. This unit shall inform the operator about the actual position of the cage and display information's as per under:- a. Real cage floor height / maximum cage floor height. b. Real outreach at cage border/ maximum outreach at cage border. c. Real angle of main boom. d. Real angle of tip boom. e. Warning signal for cage overload. **21.0 COMMUNICATION EQUIPMENT:** 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. **22. ACCESSORIES:** The following shall be provided:- i) 4 pc Wooden/steel outrigger ground pads with bracket ii) 2 pc Working range diagrams, one at the turntable, one in the working cage

		iii) 2 set Operation and maintenance manuals iv) 1 pc Plug for 24v working light at the turntable and in the cage v) 1 pc 24 v/ 70 w working light with universal bracket vi) 1 pc Lifting loop under the working cage, capacity 400 kg. vii) 5 set Fitment for safety belts in the working cage. viii) 2 pc Hydraulic pressure gauge. ix) 4 pc Locking pins for the outriggers x) 1 pc Stretcher xi) 1 no. Microprocessor based fault location with display facilities for the ALP shall be installed at suitable location. xii) 1 set of tools and accessories required for the repair and maintenance of ALP chassis and other systems **23.0 CHECKS AND TESTS AT MANUFACTURER'S WORKS** **23.1** During manufacture and especially prior to shipment/ dispatch, verification and checks shall be carried out in order to ensure that the supply is according to the specifications and approved design documents. This shall be carried out at manufacturer's premises by a team of five persons (Fire Officer, 2 Engineers & 2 Sr. Administrative officials) persons to be nominated by the purchaser. The checks shall include: - a functional check of all equipments, - check of a vital dimensions as per designs - check on assemblies, welds, screws etc., - a check of operation of safety and protection devices All expenses in this regard shall be borne out by the supplier. **23.2 AT SITE:** After delivery at site, the operating tests shall be carried out at site in presence of representatives of the supplier to check that the equipment fulfils the requirements of the specifications these shall include all tests carried out in the

		factory as well as additional tests with actual use. **24.0 TOOLS:** Tools kits shall be supplied along with the supply for all the equipment and machines as per manufacturer's recommendations **25.0 DOCUMENT SUBMISSIONS:** **25.1 FOR EXECUTION OF WORK:** Prior to manufacture of the component, a Contractor shall send the following documents for approval : General drawings, detailed assembly drawings and detailed drawings of mechanical parts, • Descriptive and operating note, • Documents, drawings, notes and references of the Sub-Contractors • Details of the provisions concerning personnel safety and use of apparatus in hazardous areas. • Details of service engineers available with the supplier for providing after sale repair and maintenance work. The capacity of the firm for providing after sale services will also counted for placement of supply order. • Details of service to be offered during the warranty period. It should be clearly mentioned about whether spare part charges are claimed during the warranty period. **25.2 AT COMPLETION OF WORK:** The Contractor shall provide up to date documentation including: • The list of general drawings and detailed drawings of electrical and electronic diagrams with complete nomenclature. • General nomenclature of supply including the sub-contractors • List of mechanical and electrical parts illustrated and itemized in accordance with the diagrams and drawing mentioned above and including the addresses of various contractors.

		• Maintenance manual with details of maintenance schedules and repair procedure for important equipment, summary of circuits, functions and adjustments and a lubrication manual including location of lubricating points, type of lubricants, frequencies and quantities. • An operating manual with instructions for starts up and users instructions • Complete documentation of equipments from sub-contractor • Spare part list with quantities for five years after handover of the ALP, anticipated frequency of replacement and prices with a one-year validity period. • Instructional plates (in English) shall be provided for all controls. **26.0 TRAINING:** The supplier shall provide the training for 5 working days to 4 personnel to be nominated by the purchaser on the operations and Maintenance of the ALP at the manufacturer's site, preferably, on the same ALP that is to be supplied. All expenses in this regard shall be borne out by the supplier. Training shall also provided by the Supplier to 10 personnel in Odisha after the installation, testing and commissioning the equipment in Odisha. **27.0 WARRANTY:** Notwithstanding anything contained in the special conditions of the tender notice the equipment should bear a minimum warranty period of 4 years. If during the warranty period the equipment required major repair then it shall be replaced by new one of same model or higher. 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.

		28.0 SPECIAL REQUIREMENT- ESCAPE CHUTE: The cage should also be able to hold an Escape chute of 42 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.

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Annexure-B

FOR Destinations of the equipments (Tentative)																						
Sl. No	**Name of equipments**	**Total Qty.**	**10 Newly created ODRAF Units**										**10 Old Existing ODRAF Units**										**Fire Striking force**
			Comdt. OSAP 1st Bn. Dhenkanal	**Comdt. 1st IR Bn. Uppar kolab**	**Comdt. 2nd IR Bn. Rayagada**	**Comdt. 3rd IR Bn. Kalinganagar**	**Comdt 4th IR Bn. Deogarh**	**Comdt. 5th IR Bn. Boudh**	**Comdt. 6th IR Bn. Khurda**	**Comdt 7th Spcialized IR Bn. Uparkolab Koraput**	**Comdt 8th Specialised IR Bn. Kandhamal**	**Comdt OSAP 8th Bn. Chatrapur (New)**	**Comdt OSAP 6th Bn. Cuttack**	**Comdt. OSAP 2nd Bn. Jharsuguda**	**Comdt. OSAP 3rd Bn. Koraput**	**Comdt. OSAP 8th Bn. Chatrapur**	**Superintendent of Police Balasore**	**Comdt OSAP 4th Bn. Rourkela**	**Comdt OSAP 5th Bn. Baripada**	**DCP (Armed)OSAP 7th Bn. BBSR**	**Superintendent of Police Bolangir**	**Superintendent of Police Jagatsinghpur**	**Chief Fire Officer Cuttack**
1	Life Jacket (Working)	**300**	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	0
2	Blower for Inflation & deflation	**100**	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0
3	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	0
4	Mountaineering Equipment	**95**	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	4	3	0
5	Telescopic Aluminum Ladder	**80**	5	5	5	5	5	5	5	5	5	5	2	2	2	2	2	5	5	5	3	2	0

6	Gas Cutting Equipment Complete set	**15**	1	1	1	1	1	1	1	1	1	1						1	1	1	1	1	0
7	Log Carrier	**200**	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	0
8	Sisal Rope 24mm	**2000**	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	0
9	Folding Standard Stretcher	**90**	4	4	4	4	5	5	5	4	5	4	5	5	4	4	4	5	5	5	5	4	0
10	Spine Board Long with Strap	**100**	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0
11	Spine Board Short with Strap	**100**	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0
12	Blanket	**200**	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	0
13	Hand held megaphone	**80**	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	0
14	HD Video Camera	**20**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
15	Thermal Imaging Camera	**20**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
16	Mobile phone	**40**	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0
17	Land-Line phone	**15**	1	1	1	1	1	1	1	1	1	1						1	1	1	1	1	0
18	FAX-Machine	**15**	1	1	1	1	1	1	1	1	1	1						1	1	1	1	1	0
19	Air Compressor with Tyre Inflator	**15**	1	1	1	1	1	1	1	1	1	1						1	1	1	1	1	0
20	Reciprocating pump-cum vehicle washer	**15**	1	1	1	1	1	1	1	1	1	1						1	1	1	1	1	0

21	Battery Charger	**19**	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	0
22	Chain Sharpener	**38**	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	1	0
23	Small Tools	**78**	4	3	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	0
24	3KVA Generators sets with all accessories	**60**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0
25	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
26	Office furniture	**15**	1	1	1	1	1	1	1	1	1	1					1	1	1	1	1	1	0
27	Rescue Tender	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
28	Tractor Trailer (\hydraulic)	**3**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
29	RCC Equipment set	**3**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
30	10 KVA Diesel Generator	**3**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
31	Hydraulic Platform (Sky lift) 42 Mt. height	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
32	Hydraulic Platform (sky lift) 32 mt. height	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Annexure – C
List of Equipment for pre-delivery Inspection

Sl.	Name of the Equipment
1	**2**
1	Collapsed Structure Search Rescue (CSSR) tools, Equipment and Accessories
2	Mountaineering equipment
3	Gas cutting equipment with complete set
4	Air compressor with tyre inflator
5	3KVA Generators Sets with all Accessories
6	Rescue Tender
7	Tractor Trailer (Hydraulic)
8	RCC Equipment Set
9	10 KVA Diesel generator
10	Hydraulic Platform (sky lift) 42mt. height
11	Hydraulic Platform (sky lift) 32mt. height
12	Spine Board Long With Strap
13	Spine Board short with strap
14	Blower for inflation and deflation
15	Reciprocating pump-cum vehicle washer
16	Chain sharpener

ANNEXURE-D

List of equipment for which demonstration required

Sl.	Name of the item
1	Life Jacket (Working)
2	Telescopic aluminium ladder
3	Blanket
4	Camp Items Folding Table & Tools (in sets)
5	Office Furniture (in Sets)
6	Mountaineering Equipment
7	Log Carrier
8	Sisal Rope
9	Folding Standard stretcher
10	Spine Board long with Strap
11	Spine Board short with Strap
12	Hand held megaphone
13	HD Video Camera
14	Thermal imaging Camera
15	Battery Charger
15	RCC equipment set
16	Chain sharpener