Sl No. 06

APPENDIX-1F (i)

Sl. No.	Name of the equipment	Is it available in PET (as per 100 Bedded). If yes then mentioned Sl. No. of PET)	QRs available or not
1	Pulsoxymeter	No	Yes
2	Nebulizer	Yes at Sl. No. 903	Yes
3	Auto cum manual external defibrillator)	Yes at Sl. No. 817	Yes
4	Anesthesia work station	Yes at Sl. No. 809	Yes

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG(med)

Recommended / Not Recommended

1. QRS/SPECIFICATIONS AND TRIAL DIRECTIVES OF "PULSE OXYMETER"

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
SPECIFICATION FOR PULSE OXIMETER: • Should have plethismographic wave form with numeric display for SPO_2 and pulse rate on LCD/TFT display. • Should have a SpO_2 range of 0 to 100%. • Should have SpO_2 accuracy of ±2%. • Should provide bar graph for pulse strength. • Audio and visual alarm for both upper and lower SpO_2, Pulse rate • Should provide with PAEDIATRIC reusable finger probe with technology from standard reputed companies.. • Beep sound and alarm sound should have separate volume control • Should have a minimum of 2 hours back-up time. • Should be a portable, light weight and desktop model. • Should be ISO9000, USFDA and European CE certified. Manufacturer/Supplier should have ISO certification for quality standards. Should have local service facility and During Demo of Equipment all features asked in Tender should have to show & justify them	The board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specification

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (med)

Recommended/ ~~Not Recommended~~

Appendix-1F (xiv)

2. QRS/SPECIFICATIONS AND TRIAL DIRECTIVES OF "NEBULIZER"

Specifications	Procedure suggested for trial by board of officers	Results expected/Desired
1. Ultrasonic nebulizer machine use compressed air to deliver asthma medicine as a wet, fine mist aerosol that can be inhaled (Particle size around 20µm or less. 2. The nebulizer should allow the medication to go directly to a person's airways and lungs and the medication can be given over a long period of time. 3. The nebulizer should makes inhaling medication easier for people who are having serious difficulty in breathing or who have trouble using an inhaler which requires careful timing and control of one's breathing. 4. Should be Compact and portable 5. Should provide efficient respiratory therapy bedside 6. Should be useful for all ages 7. Can be operated continuously for at least one hour **SPECIFICATIONS** • Particle size< 20µm at least • Controls for atomizing level • Adjustable Timer operation upto 60 minutes Noiseless operation • Light-weight and compact for bedside use Electrical requirement 220V/ 50Hz • Warranty one year	The board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specification

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (med)

Recommended / ~~Not Recommended~~

3. QRS/SPECIFICATIONS AND TRIAL DIRECTIVES OF "AUTO CUM MANUAL EXTERNAL DEFIBRILLATOR"

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
SPECIFICATION FOR DEFIBRILLATOR WITH RECORDER WITH EXTERNAL PACING The Biphasic Defibrillator (ECG, Resp) must have following features:- **Defibrillator:-** 1. *Truly 1-2-3 Operation.* 2. Biphasic Defibrillation Technology. 3. Automatic and Manual mode of Defibrillation. 4. Color TFT Display minimum 7" Diagonal. 5. Resolution of Display Min 800 x 480 pixels 6. Minimum Three Waveform Display 7. Defibrillator should have Manual Defibrillator, AED Mode, Pacing Mode. 8. *Defibrillator should measure SpO_2, NIBP, ECG& $EtCO_2$.* 9. Charging time less than 5 Sec. For 200 Joules & 8 Sec. for 360 Joules. 10. 5 Lead ECG & Respiration rate facilities with display waveforms. 11. Standard External Defibrillation. 12. Slide-off adult electrodes to expose internal Pediatric paddle 13. *Detachable adult/pediatric paddles* 14. Paddle has energy selection, Charge & Shock delivering Option. 15. Energy level from Min 1 Joule to Max 360 joules (1,2,3,4,5,6,7,8,9,10,15, 20,30,50,70, 100,150,170,200,300,360 J) in Biphasic waveform.. 16. Automatic External Defibrillation (AED) facility with Voice and Text prompt facility & energy level 100 to 360 J configurable. 17. Fully annotation recorder/printer. 18. Facility for storage of upto 24 Hours of continuous ECG waveforms, 100 Patient profiles, 1000 events for one patients, 72 hrs tabular trends, 150 min Voice recording for each patient & Data can be export to PC Through USB flash memory.	The board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specification

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG(Med)

Recommended / ~~Not Recommended~~

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
19. Battery capacity of at least 2.5 hours monitoring. 20. Impedance Compensation 20-200 Ohm(External Defibrillation) . 21. Use of pacing paddle even after defibrillation 22. Should have Automated Self Test (hourly, weekly and Monthly) with storage of results + print out and Manual routine operational checks. 23. Defibrillator Trolley with castors of same make as OEM **24. Environmental and Physical Requirements** • Water Resistance: IPX4 (without external power) • *Solids Resistance: IP4X & USFDA and ISO 9000 Certified.* • Temperature: Operating: 0 to 45 ºC • Storage: -30 to 70 ºC • Humidity: Operating / Storage: 10 to 95%.non-condensation • Altitude: Operating / Storage: -381m to +4575 m • Shock and Vibration: Meets the requirements of 21.102, ISO9919 (Shock and vibration for transport). • Bump: Meets the requirements of 6.3.4.2, EN1789 (Medical devices for use in road ambulances). • Free fall: Meets the requirements of 6.3.4.3, EN1789 (Height of fall: 0.75 m). • EMC: Meets IEC60601-1-2. • *Manufacturer/Supplier should have ISO certification for quality standards. Should have local service facility. Comprehensive warranty for 5 years after warranty for 2 yrs.* ***25. Documentation:-*** Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out . 26. During Demo of Equipment all features asked in Tender should have to show & justify them the Optional Features should have also to be shown to technical staff. the proper training and support services to be given till familiarity with the system.	The board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specification

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (med)

Recommended / ~~Not Recommended~~

4. QRS/SPECIFICATIONS AND TRIAL DIRECTIVES OF "ANESTHESIA WORK STATION"

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
1. The unit should be a advanced cost-effective, flexible anesthesia workstation for performing and monitoring inhalaticn anesthesia, suitable for Adult as well Child upto neonatal age. It should be capable of providing low-flow techniques to minimize gas and anesthetic agent consumption for economical day-to-day operation 2. Integrated systems:- The Anesthesia Workstation should have a. In-built Ventilator with Colored TFT display. b. Integrated CO2 Absorber. c. In-built& Integrated Anesthesia Gas Monitoring facility d. Multi parameter monitor e. All these components should be of the same manufacturer or brand with their label on each component. Both anesthesia delivery system & multipara monitor must be US FDA approved & European CE Marked (Should be from notified body). 3 Gas supply:- The unit should be able to connect to Central pipeline & there should be provision of One PIN Index Yoke to connect to One Emergency Gas Cylinder of O_2& N_2O each 4. Trolley:- The unit should have Powder Coated Steel Trolley with 4 Wheels & 1 or more Drawers & the front wheels should have locking device. The unit should have mounting facility to mount other equipments. 5 Flow meters:- Machine should provide electronic gas mixing with digital control for O_2, N_2O and Air.	The board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specification

Recommendation of ADG(Med)

Recommended/Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
6 Hypoxia guard:- It should have proven hypoxia guard design using the Pin-valve Mechanism or equivalent mechanism. The unit should equipped with Integrated Ratio System to maintain 25 Vol% O_2 in Fresh Gas & on accidental opening of only N_2O flow with O_2 valve closed, the Ratio system should automatically Open O_2 Valve to maintain 25 Vol% O_2 in Fresh Gas. 7 Water & Particle Trap:- The unit should have Water & Particle trap to the inlet Central Gas Pipe-line connections of O_2, N_2O & AIR. 8 Patient Module:- It should have fully autoclavable patient module having anodized metallic casing. It should have 34°C Heated Patient Module to deliver Warm Fresh Gas to Patient & to prevent condensation. The Patient Module should have Pressure Graduated Metallic APL Valve, Inspiratory Valve, Expiratory Valve, a Controlled Room Air Valve & Active Gas Scavenging Port. 9 CO_2 absorber:- Patient Module should be integrated to the CO_2 absorber of 1.4 Kg & CO_2 absorber should be Single/Double chamber design having screw type threading for easy removal & re-fitting during the operation. 10 O_2 Flush:- The unit should have O_2 Flush facility to give approximately 50LPM flow. 11 Common gas outlet:- The unit should have Common Gas Outlet for using open circuit & the unit should have easy change over from open circuit to closed circuit or vice-versa.		

Recommendation of ADG (Med)
Recommended/
Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
12 Vaporizers:- It should have provision to connect two Selectatec mount vaporizers & the unit should be provided with Three vaporizers, two equivalent to TEC-7 type, One ofIsoflurane& One of Sevofluraneand one equivalent to TEC-7 type of Desflurane **B. Inbuilt Anesthesia Ventilator** Ventilator:- It should have Integrated Microprocessor Controlled & Pneumatically Driven Ventilator with bellows and the same bellows should be useful for Pediatric& Adult Application, thus avoiding change of bellows 2 Modes:- It should offer Ventilation Modes such as Manual, Spontaneous, CMV Adult & CMV Child & PCV Adult & PCV Child , SIMV & PSV 3 I:E ratio:- The unit should offer I/E Ratios : 1:1, 1:1.5, 1:2, 1:2.5, 1:3, 1:4, 1:5 with I/E Inverse Ratios: 2:1, 3:1 & 4:1 (PCV); PEEP: 0-15mbar ± 2mbar, Tidal Volume: 20- 1400 ml 4 Display:- It should have a high contrast color TFT Display. 5 Self test:- It should be equipped with self test routines and automatic calibration of all sensors 6 Display:- Display should indicate measured values: O2 (Paramagnetic), real time capnograph, anesthetic agents (HALOTHENE/ ISOFLURANE/ SEVOFLURANE/ DESFLURANE), Tidal Volume, Minute Volume, Frequency, PEEP, Mean pressure-in graphic form with numerical display. 7 Gas Monitoring:- The In-built Anesthesia Gas Monitoring Facility should based on side-stream technology, using Infra Red Photometry Principal & also it offer Automatic Anesthetic Agent Identification The unit should offer In-built Anesthesia Gas Monitoring with following specifications: CO_2 Et. & In: Display: 0-10%, 0-76 mmHg Accuracy: +/-0.5 Vol% or +/-12% rel. Reaction time: < 500 ms 150ml/min N_2O In &Et.: Display: 0-100 Accuracy: +/-2 Vol% Or +8% rel. Reaction time: :< 500 ms 150ml/min O_2 (paramagnetic) In & Et.: Display: 0-100% Accuracy: +/-0.1% Reaction time: < 500 ms 150ml/min		

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (med)
Recommended / Not Recommended

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
Anesthetic agent: Halothane, Isoflurane: Display: 0-8.5 Vol% Sevoflurane : Display: 0-10 Vol% Desflurane: Display: 0-22% Accuracy: 0-1.15% or +15% rel. 8. MAC:- It should have a display of MAC (Minimum Alveolar concentration 9 Alarms:- It should have clear alarms and user information as text messages. It is essential that unit should prompt user for corrective action rather than giving only alarm with no diagnostic message 10 Test:- The unit should perform the Leak Test & Sensor Test on Start of the unit to know the leak volume or dead space volume of tubings etc. & thus deliver exact Tidal Volume to the patient 11. Fresh Gas De-coupling:- The unit should have Fresh Gas De-coupling or equivalent mechanism. 12 International Standards:- The unit should comply with International Standards & should have CE Marking, DIN EN ISO 9001: 2000 Certification & EN ISO 13485: 2003 Quality Systems should have European CE Marking (should be from notified body) and US FDA approved **C. Specifications for Multi Parameter Patient Monitor** 1 Parameters:- Should be capable of Monitoring Heart rate, SPO_2 , NIBP, ECG, Temp, RR and IBP2(Upgradable to 4), NMT, BIS/ENTROPY Display:- Should have a Display of 15 inch and above diagonal color TFT display. 3 Operating system:- Should operate through Rotary knob & Membrane keyboard. 4 Fields:- Should have 8 waveform fields. 5 ECG:- Should have provisions to connect 3 or 5 Lead ECG cables 6 NIBP:- Should have NIBP measurement by Oscillometric method. - Should have Manual / Automatic modes of measurement. - Should have a measurement range of 20 to 250 mm Hg. 7 Invasive BP:- -Should have 2 channel Invasive Blood pressure (IBP) measurement. - Should have waveform IBP1 and IBP2.		

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (Med)
Recommended / ~~Not Recommended~~

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
8 Temperature:- Should have provision for two temperatures with display of T1 and T2. 9 Respiration:- Should have Respiration by Impedance method 10 SPO_2:- It must use Nellcor /Masimo technology to measure oxygen saturation for accuracy during motion artifacts, low perfusion states like shock, bradycardia and hypothermia Should have SPO_2 measurement with plethysmograph , digital value & perfusion index and SPO2 values with range 50% to 100% . and SPO2 values with range 50% to 100% . 11 Alarm facility:- Should have Alarm facility for HR limits, Arrhythmia, ST Segment Limit, and all other parameter limits. 12 Graphs & Trends:- Should have 24 hr of Graphical and Tabular Trend for NIBP, HR, SPO2, RR, IBP, IBP2, T1, T2, AWRR, ST. Segment and CSI %. 13 NMT Monitoring:- Integrated Neuromuscular Transmission Monitoring in the primary monitor with all accessories. Display should be in the primary monitor 14 BIS/Entropy:- Depth of Anesthesia Monitoring module -- BIS/Entropy with BIS/Entropy all accessories &50 sensors Should include inbuilt Anesthesia record keeping software facility in monitor to document anesthesia event using standardized menu based entries Facility to store snapshots during critical events for waveform review at a later stage. Audio visual and graded alarming system. It should provide slave display of 15 inches and above with cable. 15 System Configuration Accessories, spares and consumables:- Should be supplied with the following Standard Accessories. 1. 3 Lead ECG cable with cords- 02 nos. & 5 Lead ECG cable with cords- 02nos. 2. SPO_2 finger probe for Adult and Pediatric application.-2 each along with 2 connecting cable. 3. SpO_2 Neonatal Probe.-2 4. NIBP cuff for conventional Adult, extra large for adult and for Pediatric application – 2 each. 5. IBP Reusable Transducers with cable – 2 each. 6. Disposable IBP pressure transducers – 50 7. 2 Temperature Probes 8. Depth of Anesthesia Sensors-50 9. Accessories for neuromuscular transmission monitor-01 set 10. Disposable domes-50 11. Disposable Adult & Pediatric circuits-50 each.		Recommendation of ADG(Med) Recommended Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	PSO

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
12. HME filters-50 16 Environmental Factors:- The unit shall be capable of operating continuously in ambient temperature of 10 –40 deg C and relative humidity of 15-90%. - The unit shall be capable of being stored continuously in ambient temperature of 0 –50 deg C and relative humidity of 15-90%. - Shall meet IEC-60601-1-2: 2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility or should comply with 89/366/EEC; EMC directive. 17 Power Supply:- Power input to be 220-240VAC, 50Hz fitted with Indian plug Voltage corrector/stabilizer of appropriate ratings meeting ISI Specifications. (Input 160-260 V and output 220-240 V and 50 Hz) Should provide Suitable Isolation Transformer with true online UPS with maintenance free batteries for minimum one-hour back up should be supplied with the system. 18. Standards, Safety & Training:- Should be US FDA and European CE approved (Should be from Notified body) product Shall meet the safety requirements as per IEC 60601-2-27:1994—Medical electrical equipment—Part 2: Particular requirements for the safety of electrocardiographic monitoring equipment. Manufacturer/Supplier should have ISO certification for quality standards. Should have local service facility .The service provider should have the necessary equipments recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/maintenance manual Back to back warranty to be taken by the supplier from the principal to supply spares parts and software update for a minimum period 10 years Comprehensive warranty for 5 years after warranty for 2 yrs.		

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG(med)

Recommended / Not Recommended

Appendix-1F (xxiii)

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
19. Documentation:- Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.		

(Dr. J Chatopadhayay)
BSF
Member-I

(Dr. Rohit Shyam Bobil)
CMO(SG) **(ENT)**
RH, ITBP, Gr. Noida
Member-II

(Dr. Saquib Khan) CMO
(OG)
(Radiology) CRPF,
Member-III

(Dr. R Kuppu Samy)
CMO(SG)
(Paediatrics) CRPF
Member-IV

(Dr. Chandrima Kar)
Comdt /Spl. Gr.I &
(Obs Gyn), CRPF
Member-V

(Dr. Anurag Jain)
Contractual, Spl
(Orthopaedics),
CRPF **Member-VI**

(Dr. Rakesh Tiwari)
CMO (SG)
(Anaesthesia),
ITBP **Member-VII**

(Dr. Shaifali Gupta)
Comdt /Spl. Gr.I
(Ophthalmology), ITBP,
Member-VIII

(Dr. Rajkamal Nimesh)
Comdt /Spl. Gr-I
(Surgery), ITBP,
Member-IX

(Dr. Gaitri Devi)
CDS (SG), (Dental),
SSB
Member-X

(Dr. Neeraj Kumar)
CMO, (Medicine),
ITBP
Member-XI

(Dr. Soumyesh Ghosh)
Comdt./Spl. Gr.I
(Pathology), ITBP
Member-XII

Recommendation of ADG (med)
Recommended / Not Recommended

(Dr. A C Bhardwajan)
IG (Med.), RH, ITBP, Gr. Noida
Presiding Officer

APPROVED / NOT APPROVED

DIRECTOR GENERAL
BORDER SECURITY FORCE

Appendix-2F (i)

Sl. No.	Name of the equipment	Is it available in PET (as per 100 Bedded). If yes then mentioned Sl. No. of PET)	QRs available or not
1	suction apparatus electric	Yes at Sl. No. 824	NO
2	oxygen concentrator	Yes at Sl. No. 892	NO
3	Resuscitation kit (with anti shock trouser)	Yes at Sl. No. 900	NO
4	Double outlet oxygen concentration (5 ltr)	No	NO
5	Multipara Monitor	Yes at Sl. No. 884	NO
6	Video laryngoscope (flexible curved)	No	No
7	3-Dom OT Light	Yes at Sl. No. 842	No
8	Patient Transfer Unit for Evacuation of Patient by MI 17 Helicopter as AIR Ambulance		
	a) Transport ventilator	Yes at Sl. No. 812	No
	b) Portable suction Apparatus	Yes at Sl. No. 826	No
	c) Portable & fixed oxygen cylinder with key and trolley	Yes at Sl. No. 878 & 879	No
	d) Oxygen administration equipment	Yes at Sl. No. 806 & 807	No
	e) Intubation equipment (conventional - macintos and miller blades SS)	Yes at Sl. No. 799 & 800	No
	f) Multi para monitors with etco2 monitor	Yes at Sl. No. 884	No
	g) AED	Yes at Sl. No. 817	Yes
	h) Syringe infusion pumps	Yes at Sl. No. 820	No
	i) Auto loader collapsible stretcher convertible to wheel chair	No	No
	j) Schoop stretcher	No	No
	k) Spine board	No	No
9	BIPAP Machine	No	No
10	Operation theatre Light Control over head shadow less lamps 07/05 Bulbs	No	No
11	Electro Hydraulic OT table with Manual override	Yes at Sl. No. 843	No
12	Oxygen Generation Plant 200 LPM	No	No
13	OT Table (Electric Remote Operated with 100% Radiolucent table top for multiple applicator.	Yes at Sl. No. 843	No

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (MED)
Recommended/Not Recommended

1. QRS/SPECIFICATIONS AND TRIAL DIRECTIVES OF "SUCTION APPARATUS ELECTRIC"

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
• Should be automatic, semi-automatic and portable Heavy duty motorized pump for fast vacuum built up. • Finely regulate 0-710mm ± 10 Hg vacuum – Easy to read – off. • Overflow safety device: Overflow check valve and removable filter to protect the pump from moisture • Non-collapsible tubing • Machine should be fitted on lockable wheel trolley. • Packaging details: Packed in heavy duty cardboard box **Technical Specifications:** Max Vacuum — 710 ± 10mm Hg relatable through Vacuum Control Knob. Suction Capacity — 35 ltrs. / MIN Vacuum Gauge — Bourdon Type 3" 0-760mm Hg calibration Suction Bottle — Glass jars or 2 x 2000cc Poly carbonate jars(UNBREAKABLE) with over flow check valve (float type) Motor — 1 / 4 hp motor Vacuum Pump — Rotary type. Power Source — AC 220V 50 Hz. Single Phase. Overall Size — L 385mm x W 355mm x H 730mm (Approx.) Finish — Powder coated. Weight — 25 kg (appox) **Standards, Safety & Training:-** Should be US FDA and European CE approved (Should be from Notified body) Manufacturer/Supplier should have ISO certification for quality standards. Should have local service facility and During Demo of Equipment all features asked in Tender should have to show & justify them	The board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specification

Recommendation of ADHs (med)
Recommended/ Not Recommended

Member-I | Member-II | Member-III | Member-IV | Member-V | Member-VI | Member-VII | Member-VIII | Member-IX | Member-X | Member-X | Member-XI | Member-XII | P.O.

Appendix-2F (iii)

2.QRS/SPECIFICATIONS AND TRIAL DIRECTIVES OF "OXYGEN CONCENTRATOR"

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
Specifications: Casing with vertical layout and handle, and 4 wheels. With Adjustable flow meter. Power requirement: 220 to 240V-50Hz, 2.0 amps, 115V-60HZ 230V-60HZ. Two ports for oxygen delivery, each port should provide O_2 flow rate of atleast 10 litres per minute simultaneously, Outlet pressure: 9.7psig (68.6kPa). Oxygen percentage: equivalent to 93% ± 5%. Operating altitude: 1. 0-1500m no degradation in performance. 2. 1500-3000m: should be more than 90-95% 3. 3000-5000m should be more than 85-90% Operating environment range: temperature 0 to 40°C with humidity range >35%. OSD continuous monitoring of O_2 concentration. Audible alarm, activates when O_2 drops to ±80%. Operating system: time cycle and pressure swing. Pressure relief valve: 44psig ±3psig (303kPa with ±21kPa). Storage conditions: Temperature 0 to 50°C. Relative humidity from 0 to 95%, including condensation.	The board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specification Recommendation of ADL(med) Recommended/ Not Recommended
Three types of filters: 1. Foam pre-filter for large dust particles. - Located at the rear of the device. 2. Bacterial captures particles up to 0.5µ. - Located in front of the oxygen outlet. 3. Felt filter for fine dust Unit presentation: 1 oxygen concentrator,1 service set and 1 dust filter. Supplied with accessories ,user and maintenance manuals, in: English/ Hindi, , Labeling : Reference number, serial number, manufacturer's name, and CE mark and reference number of notifying body. Packaging: Supplied in reinforced box. Handle with care, respecting the "top-bottom" markings. Labeling: item description, reference number, serial number, manufacturer's name, and CE mark and reference number of notifying body.		

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
Quality: Complies with Medical Device Directive of 93/42/EEC EN 60-601-1-2: Electromagnetic compatibility of electro-medical devices. ISO 8359: Oxygen concentrators for medical use **Standards, Safety & Training**:- Should be US FDA and European CE approved (Should be from Notified body) Manufacturer/Supplier should have ISO certification for quality standards. Should have local service facility and During Demo of Equipment all features asked in Tender should have to show & justify them		

3.QRS/SPECIFICATIONS AND TRIAL DIRECTIVES OF "RESUSCITATION KIT WITH ANTI SHOCK TROUSER"

Recommendation of ADG(med)
Recommended
Not Recommended

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
Resuscitation kit with anti shock trouser 1. Resuscitation kit should be designed to store and carry basic resuscitation equipment, intubation equipment and accessories including ampoules. The outer cover of bag is made of splash-proof polyamide, straps and belts are made of polypropylene. 2. It should have silicone resuscitation bag (adult) to deliver a maximum tidal volume of approximate 1300 ml, the outer cover of resuscitation bag should be 100% latex free, along with reservoir bag. 3. It should have pneumatically powered portable transport ventilator for adult and children with a body weight down to approximate 15 kg (3 years), it should deliver 12 or 20 breaths per minute & tidal volume in the range of 200-1200ml. Oxygen concentration switch for ventilation at either 60% or 100% should be present.	The board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specification

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Appendix-2F (v)

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
4. It should have double chamber Suction Pump which can be operated mechanically (i.e. by foot/hand). It should have 10-mm suction tip through which maximum free airflow of 70 l/min and a vacuum of -600 mmHg can be achieved. All parts should be autoclavable at 121°C. 5. It should have oxygen regulator and oxygen cylinder for connection to uni-suction pump and portable transport ventilator with a filling pressure of maximum 200 bar. It should have controlled flow in the range of 0.25-25l/min for manual resuscitation. 6. It should have adult intubation equipments - Disposable Endo-tracheal tube with cuff of sizes 6.5,7,7.5,8 & 8.5 mm (1 Nos. each), Suction catheters 3.3, 4.0 & 5.5mm (3 Nos. each), Guedel airway size 1,2 & 4, Laryngoscope handle with 2 macintosh blades of sizes 2 & 3, Spare lamp (1 no.) for laryngoscope, Magill forceps, Pair of bandage scissor, Artery forceps, Lister type dressing forceps, Roll of adhesive plaster (silk quality), Insulation foil (gold /silver), plastic syringe 10 ml for cuff inflation & 2 ml, 5ml, 10 ml with luer connector (2 no.each), Hypodermic needle 18G & 21G (12 Nos. each), 7. It should not weigh more than 20 kg. 8. It should be internationally reputed company. 9. Standards, Safety & Training:- Should be US FDA and European CE approved (Should be from Notified body) Manufacturer/Supplier should have ISO certification for quality standards. Should have local service facility . Comprehensive warranty for 5 years after warranty for 2 yrs. **10. Documentation**:- Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out .		

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADs(med)
Recommended/ ~~not~~ Recommended

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
26. During Demo of Equipment all features asked in Tender should have to show & justify them .the Optional Features should have also to be shown to technical staff. the proper training and support services to be given till familiarity with the system. **ANTI-SHOCK TROUSERS** 1. Anti-shock trousers should carry out a triple function for traumatised patients. 2. The first consists of foreseeing hemostasis, 3. The second regards the self-transfusion of patients in a state of shock. 4. The third is the pneumatic immobilization of fractures of lower limbs and pelvis. 5. It should be adjustable in different sizes, separate replaceable air chambers, X-ray compatible, the three air chambers should be separate and made up from polyurethane welded with a HFW process. 6.The transport bag should be made of tear proof nylon can carry trousers and the inflation pump and available in adult and pediatric sizes. • Dimensions adult: 1190 x 520 mm • Weight adult: 5 kg • Weight pediatric: 3 kg **All the provided items should be ISO9000, USFDA and European CE certified** Manufacturer/Supplier should have ISO certification for quality standards. Should have local service facility .Comprehensive warranty for 5 years after warranty for 2 yrs.		

4. QRS/SPECIFICATIONS AND TRIAL DIRECTIVES OF "DOUBLE OUTLET OXYGEN CONCENTRATION (5 LTR)"

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
Double outlet oxygen concentrator should have oxygen purity upto 95%. **1. should have** safety features like High pressure safety valve, Power failure alarm function & Fault self-detection system.	The board should check physically during	As per specification

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O

Recommendation of ADG (Med)
Recommended / ~~Not Recommended~~

<table>
<tr><th>Specifications</th><th>Procedure suggested for trial by board of officers</th><th>Results expected/ Desired</th></tr>
<tr><td>

2. should have Flame retardant thermo-plastic moulded cabinet for strength and durability.

Oxygen Concentrator details :-

- 10 liter double outlet
- Built-in nebulizer
- LCD Screen to view usage hours
- LED Lights for System Status, Audio alarm for power failure, Low Oxygen concentration, compressor failure, pressure cycle failure
- Timer Function for auto-shut down
- Storage compartment to place accessories
- user-friendly, quiet and reliable

Oxygen Concentrator Specifications :-

Weight	25 Kg
Size	55.6cm X 28.5cm X 47cm (HXWXD)
Input Voltage	AC 220V +/- 10%, 50Hz-60Hz
Outlet Pressure	20kPa ~ 50kPa (2.9psi ~ 7.25psi)
Input Power	400 VA
Number of Outlet	2 (Dual output)
Adjustable Flow Rate	0.5 ~5 L / min

</td><td>demonstration.
OEM should submit an undertaking and documents in this regard.</td><td></td></tr>
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Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (MED)

Recommended / ~~Not Recommended~~

Noise	Less Than or Equals 55dB (A)
Temperature Range	10 to 35 degC
Atmospheric Pressure	860hPa ~ 1060 hPa (12.47 psi ~ 15.37 psi)
Relative Humidity	30% ~ 75%,Non- Condensation
Altitude	2000 metre Above Sea Level

List of Supplies :

1. Oxygen Concentrator Machine
2. Nasal Cannula
3. Humidifier Bottle
4. Nebulizer Kit
5. Filters set
6. Power cable
7. User Manual in hindi/ english and other documents

8. Standards, Safety & Training:- Should be ISO 9000, US FDA and European CE approved (Should be from Notified body) Manufacturer/Supplier should have ISO certification for quality standards. Should have local service facility and during Demo of Equipment all features asked in Tender should have to show & justify them

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG(med)

Recommended / Not Recommended

Appendix-2F (ix)

5. QRS/SPECIFICATIONS AND TRIAL DIRECTIVES OF "MULTIPARA MONITOR"

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
SPECIFICATIONS FOR MULTIPARA MONITOR (8 PARA) 1. Patient Monitor should have bright, minimum 22" or more color LED Screen Display with full touch-screen facility. 2. Should be compact, Portable light weight, with weight not exceeding 5kg including battery. 3. Should have facility of displaying at least 11 waveforms along with related numerical parameters on single screen. 4. Should have facility to monitor ECG, MASIMO SPO_2, NIBP, Temperature, Respiration rate, $EtCO_2$, Dual IBP, Heart-rate. 5. Monitor should have Fan-less design and should have internal rechargeable battery for 6 hours or more operation along with battery charge indicator. 6. *Should display perfusion index (PI%) from SPO_2 as an indication of pulse strength & amp; it should also have perfusion index for motion arrogant technology.* 7. Should have facility of displaying large numerical values and should have multiple layout of screen. 8. Monitors should have ST segment calculation with advanced arrhythmia detection. 9. Monitor Should have Side stream $ETCO_2$ Technology. 10. Patient Monitor should be Upgradable to Cardiac Output. 11. Monitors should have facility to review last 1200 hour of trends & Option of 1800 Alarm events, and 1600 NIBP Measurement. 12. Should have facility to store ECG Waveform of last 48 hours as standard feature. 13. Monitors must have the time linked review function. Monitors must show the waveforms for the time when the arrhythmia occurred in case of arrhythmia recall. 14. Monitor should have graded audio/visual alarm color coding & should be visible from a distance.	The board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specification

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADC med
Recommended / Not Recommended

Appendix-2F (x)

6. QRS/SPECIFICATIONS AND TRIAL DIRECTIVES OF "VIDEO LARYNOSCOPE (FLEXIBLE CURVED)"

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
Specifications for Video Laryngoscope and Fiberoptic endoscope Reusable Video Laryngoscope required with video illumination to visualize and document the operational area on screen. It should consist of following features: **Monitor** □ Screen 8 to 12 inch in size for display with touch screen to control features with HDMI output for connecting to a big screen which can display picture simultaneously on both screens. □ Monitor should have two ports to connect two video laryngoscope blades at one time and picture can be swapped using touch screen. □ Monitor should be chargeable, to be supplied with charger and should have facility to be used while charging. □ Monitor resolution should be minimum 1920 X 1200 pixels in 16:9 format. □ Integrated recording of Video & still images should be possible on data card or USB drive with JPEG and MPEG format which can be easily transferred to the computer/ laptop. Documented videos & amp; still images should be easily recalled on the monitor. □ Monitor Should have a facility to connect flexible scope directly without any special coupler or accessory. □ Monitor should have Picture-in-Picture & side-by-side mode to view images from 2 different blades or flexible video scopes. □ Monitor should be splash proof according to IP 54 and should be shock resistant. □ Monitor should have lithium-Ion rechargeable batteries and run for at least 100 mins. When fully charged. □ Soft bag from same manufacturer should be supplied to place the monitor and system can also be operated without taking monitor out from the bag. □ Adult Magill forceps from same manufacturer to be provided for foreign body removal and for assisting nasal intubation while using blades	The board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specification

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O

Recommendation of ADG(med)

Recommended / ~~Not Recommended~~

Appendix-2F (xi)

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
Blades ☐ Blades and connection cable should be fully immersible in disinfecting solution. ☐ Blades can be sterilized using Sterrad and Steris system. Thermal disinfection upto93 degrees and Chemo-thermal disinfection upto 65 degrees should be permissible. ☐ Required standard Macintosh and Miller blades with integrated camera chip and LED light illumination. ☐ Blades should have anti fogging mechanism. ☐ Macintosh blade size 3 producing resolution of minimum 800p. ☐ Macintosh blade size 4 producing resolution of minimum 800p. ☐ Special angulated Adult Blade for difficult intubation with device for introduction of suction catheter of size 16-18 Fr., angle of view should be 80 degree or more should be provided with stylet from same manufacturer. ☐ Stylet should not be required for intubation while using Macintosh blades. ☐ Accessories like protection cap for blades, tray for cleaning and sterilization of blades (at least two blades at a time) from same manufacturer should be provided. ☐ Stand to hang monitor with tray for laryngoscope blades should be provided from same manufacturer with height 120 cm, rollable with five legs and antistatic castors, crossbar 25 cm x diameter 25 mm for positioning the monitor, with tray, dimensions (w x d x h): 30 x 20 x 10 cm. **Fiberoptic endoscope** ☐ It should be light weight, high resolution & potable flexible scope. ☐ Integrated camera chip and LED light illumination ☐ ET TUBE HOLDER should be a part of standard accessory of flexible scope and should be from same manufacturer. ☐ There should be 5cm interval markings on the scope. ☐ Set should include- Suction Adaptors (Disposable), Cleaning brush & Leakage tester as standard accessories along with carrying case.		

Recommendation of ADG (med)

Recommended
Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Appendix-2F (xii)

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
□ Scope should be suitable for following applications- □ Bronchoscopy □ Endotracheal Intubation □ Foreign body removal □ Bronchial Lavage □ Inspection of the Airways □ Dilatation Tracheotomy □ Technical Details of Flexible Video Endoscope- - Tip deflection UP/DOWN: 140□-160□/140□-160□ - Angle of view 90-100 degrees, - Working Length: minimum 65 cm or more - Total length: at least 90-100 cm, - Working Channel diameter: max. 2.1 mm or less, Distal Tip Outer Diameter: 5.2mm-5.7mm **Standards, Safety & Training**:- Should be US FDA and European CE approved (Should be from Notified body) Manufacturer/Supplier should have ISO certification for quality standards. Should have local service facility. Comprehensive warranty for 5 years after warranty for 2 yrs. ***Documentation:-*** Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out . During Demo of Equipment all features asked in Tender should have to show & justify them the Optional Features should have also to be shown to technical staff. the proper training and support services to be given till familiarity with the system.		Recommendation of ADG (Med) Recommended/ Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Appendix-2F (xiii)

07. QRS/SPECIFICATIONS AND TRIAL DIRECTIVES OF "3-DOM OT LIGHT"

Specifications	Procedure suggested for trial by board of officers	Results expected /Desired
SPECIFICATION FOR 3DOM OT LIGHT 1. The Lights should have LED light engines in which the mixing of the various LED lights should take place inside the engines itself which should prevent the casting of color shadows. 2. Should be LED based microprocessor control technology 3. One major dome and two satellite dome. 4. Dome body should be of single piece and should have provision for air circulation. 5. Intensity at 1-meter distance 1,50,000 to 1,60,000 lux for major domeand not less than 1,10,000 to 1,30,000 lux for satellite dome. 6. Should have variable Colour Temperature: 3500-5500 K. 7. Having on off switch and light intensity control on light dome 8. Homogenous luminous field with lowest possible amount of shadow. 9. The contrast between the lighted area and the surrounding should not cause stress to the surgeon's eye. 10. Depth of illumination should be 100-140 cms. or more for main & satellite dome. 11. Illuminated field diameter should be approx. 20-30 cms. 12. Colour rendering index (CRI) should be 93 – 98. 13. Height adjustment more than 1 meter. 14. LED life span 30000 or more Hrs. 15. Light field adjustment by sterilizable handles (2 sets). 16. Control panels on the light assembly as well as away from it(Remote Control) for adjustment of light intensity, illuminated area and for switching on andoff, focusingetc 17. The light head should be so constructed as to provide optimum conditions for laminar flow. 18. User selectable intensity variation with digital display from 30 to 100% in 6 or more steps" 19. It should have a back light or ENDO mode to allow appropriate visibility of the screen.	The board should physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specification

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (med)
Recommended / ~~Not Recommended~~

Appendix-2F (xiv)

Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
a) The unit shall be capable of being stored continuously in ambient temperature of 0 -50 deg C and relative humidity of 15-90% b) The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90% c) Power input: 220-240V/ 50 Hz AC Single phase fitted with appropriate Indian plugs and sockets. d) Electronic Voltage corrector/stabilizer of appropriate ratings meeting BIS Standards/Specifications.(Input 160-260 V and output 220-240 V and 50 Hz) e) Electrical safety conforms to standards for electrical safety IEC 60601-1 General Requirements f) Shall meet internationally recognized standard for Electro Magnetic Compatibility (EMC) for electro-medical equipment: IEC-60601-1-2 :latest edition or should comply with 89/366/EEC; EMC-directive as amended g) Certified to be compliant with IEC 60601-2-41: Particular requirements for the safety of Operation Theatre Light or equivalent if applicable. h) Equipment should have US FDA and European CE approved /certified. Should have safety certificate from a competent authority CE / USFDA / STQC CB certificate / STQC S certificate or valid detailed electrical and functional safety test report from ERTL.		

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (MEI)

Recommended / Not ~~Recommended~~

08. QRS/SPECIFICATIONS AND TRIAL DIRECTIVES OF "PATIENT TRANSFER UNIT EVACUATIO OF PATIENT BY Mi 17 HELICOPTER AS AIR AMBULANCE"

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
A. Ventilation and Airway equipment	**I. TRANSPORT VENTILATOR :** 1. Should be Pneumatic driven transport ventilator operating on main inbuilt battery or ambulance /car battery backup for minimum 06 hours with AC-DC Adaptor/charger. 2. Suitable for Adult, Children and Infant for transporting patients upto pre-hospital and intra hospital conditions on ground and air 3. Should be ergonomic design with easy to carry, compact and portable and low weight (not more than 05 kg of weight) and 8 kg with extendable battery 4. Should have quick and easy access ventilation mode with preset emergency mode for Adult, children and infant .It should be easily detach and move with the patient. 5. Should have integrated colour touch screen as well as knob operated for setting and viewing patient data,pressure and flow wave form. With FiO2 measurement minimum screen size should be 4 inches 6. Should have controls : i. Tidal volume 50 to 2000ml ii. PEEP:0 to 20 mbar/cm H2O iii. RespiratoryRate 2-50 breath/min. iv. Pressure support 0-65 mbar v. FiO2: 40% or 100% vi. I:E ratio-1:4 to 4:1 or trigger dependent vii. Air mix for longer duration of transport from 55% and no air mix for 100% in emergency condition	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications

Recommendation of ADS(Med)
Recommended
Not Recommended
Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	7. Should have following ventilation Modes i. Volume controlled ventilation modes : IPPV,S-IPPV,CPR,RSI,SIMV,PEEP ii. Pressure controlled ventilation Modes : PCV iii. Spontaneous breathing : CPAP and with ASB 8. Should have both Audio and colour coded, visual Alarms for High and low pressure i. Apnoea ii. setting errors iii. Low and high pressure supply iv. Low battery 9. Should have bracket for proper fixing on board ,trolley, stretcher and Bed rails and should be easily mountable in road /Air Ambulance 10. Should be automatic/Manual parameter adjustment of patient according to Age, Height & weight of patient. 11. Should be suitable shock resistant and altitude compensated minimum upto5000 meter. 12. Should work in Indian tropical condition in all weathers. 13. Should be upgradable modes like EtCo2 with capnograph. 14. Magnetic plugs at the device end of the power supply cable so as to avoid any electrical mishap under any circumstances including direct contact with an open plug under any unforeseen emergency situation. **OPTIONAL** i) Turbine technology ventilator can work on atmospheric in case of oxygen failure ii) Delivers 21% O2 to 100% O2 (with external oxygen supply) iii) Universally compatible O2 connector iv) Compact, light and easy to use v) Should turbine-driven ventilators	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications Recommendation of ADLs(med) Recommended /Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	vi) Should be used in Long distances evacuation Quality standards vii) Should have CE or FDA certification viii) Should comply with relevant IEC certification ix) Should have vibration and electromagnetic compatibility It should have certificate of AIR WORTHINESS.		
	I. PORTABLE SUCTION APPARATUS: **Electronic Suction device with ambulance mount** 1. Should have Suitable for use on babies, children and adults. 2. Should have High suction capacity of about 35 liters/minute at -0.8 bar (at device inlet) 3. Should be lightweight (not more than 06 kg) rugged and should be made of impact-resistant materials with low centre of gravity 4. Should have Inbuilt anti flammable Rechargeable battery autonomy up to 60 minutes and battery status display and user can easily change battery without opening device and without tools 5. Should be Modern lithium-ion rechargeable battery with greater run time of more than 60 minutes should have built in charger with integrated AC/DC charging module. 6. It should have control knob for continuously adjustable vacuum level up to at least 760 mmHg starting from zero and Should have Four pre-defined vacuum levels can be selected by user should be adjustable from -0.1 bar, -0.2 bar, -0.5 bar and -0.8 bar and electronically regulated 7. Should have Automatic function check with rapid visual and acoustic feedback 8. Should be Safe secretion collection in auto-clavable reusable secretions canister with bacteria filter and overflow protection or disposable suction bag with integrated bacteria filter		

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O

Recommendation of AXS (Med)
Recommended / Not Recommended

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	9. Should have Optimum accommodation of suction tube in holder on side of device With Single-handed release from wall mounting with the press of a button 10. Should be Compatible with existing ACCUVAC wall mounting Optionally available: large accessories bag, protective bag and/or shoulder strap 11. Should have Endotracheal and bronchial suction along with Suctioning of secretions and food particles 12. Should have minimum pressure for conducting vacuum pump assisted vaginal delivery 13. Should have Deflate vacuum splints, mattresses 14. Should have suitable for pre-hospital and intra hospital care 15. Should be portable and easily mountable in road /Air Ambulance Wall mounted with necessary CE certification. 16. Should be suitable shock resistant and altitude compensated 17. Should be wall mounted docking station with a facility of 12V DC charging as per EN 1789_2010 norms with 10 G capacity mount. 18. Should be Complied with all standards as per international norms and Should have certificate of AIRWORTHINESS **II. PORTABLE & FIXED OXYGEN CYLINDER WITH KEY AND TROLLY :** Portable Oxygen Cylinder is life saving kit portable cylinder 1. Should be economical, Non-magnetic, Portable and Easy to carry 2. Should be Light weight portable Oxygen Cylinder along with 10 Litre water capacity or higher capacity with variable flow regulator. 3. Should be leak proof 4. The cylinder should be properly fitted in unbreakable trolley as per size, and should be wall mountable in Air ambulance.	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG(Med)
Recommended / Not Recommended

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	5. Should be colour coded 6. Key should be secured with durable metallic chain 7. Should be easy adjustable in confined space. 8. Should be Complied with all standards as per international norms and Should have certificate of AIRWORTHINESS	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications
	III. OXYGEN ADMINISTRATION EQUIPMENT(Disposable): **1. Bain's circuit for adults with reservoir bag of 500 ml, 1 litre and 2 litre capacity.** i. Should be Compact and inexpensive with low dead-space ii. Should be Low resistance to breathing iii. Should Facilitates scavenging of waste gases iv. Should be Complied with all standards as per international norms **2. Jackson-Rees Circuit for paediatric should be low resistance with minimal dead space with Reservoir bag (Disposable)** i. Should be durable ii. Should be Light weight iii. Should be Crack resistance iv. Should have 1.6 m 10 mm corrugated tube fresh gas line with 22 mm male connector v. Should have 0.5 lt open tail reservoir bag vi. Should be Complied with all standards as per international norms	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (med)
Recommended / ~~Not Recommended~~

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	3. Ventimask (Disposable): i. Should be easy accessible and economical and an ideal for patients on regular or long term use ii. Should have fixed and predictable oxygen concentration under conditions of the changing ventilatory patterns and accepted standard for controlled oxygen therapy for exact oxygen concentration delivery. iii. Should be with optimum clinical performance for greater patient acceptability. iv. **Should have Large Capacity** with minimum 280ml capacity for oxygen reservoir and accuracy. v. The **Exhalation Vents**The for CO_2 washout and prevention of pressure build-up in the mask. vi. Should be Soft and Flexible **and should seals comfortably to the face without pressure points** vii. **Should have** Horizontal Gas Flow for **Minimising irritation anddryness of the eyes.** viii. Should be Complied with all standards as per international norms **4. Transparent Facemask with nebulizer(Disposable)**: i. Should be easy accessible and economical and an ideal for patients on regular or long term aerosol therapy. ii. Should be Soft, clear Aerosol Mask with anatomical form is ideal for long term use. iii. Should be Gently rolled, feathered edges with integrated nose bridge for extra comfort. iv. Should have Swivel connector for convenience of nebulization in horizontal and vertical position ensuring patient comfort. v. Should have Larger surface area provided by unique convex cone design, ensures maximum capillary action and eliminates medication waste. vi. Should have Greater nebulization rate, Nebulizer 3cc within 10 minutes. vii. Should be Complied with all standards as per international norms	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications Recommendation of ADGMES Recommended/ Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	5. Non-re-breathing mask(Disposable): i. Non-rebreathing masks should deliver a high concentration of oxygen with a partial non-rebreather option available. ii. Non-rebreathers should have swivel connector for optimum patient comfort and uninterrupted oxygen flow. iii. Should be Reusable after sterilisation and latex free. iv. Should Delivers high concentration of oxygen v. The Reservoir bag should assures oxygen supply to meet variable breathing patterns and tidal volumes vi. Should be Soft, pliable mask fits comfortably on patient vii. Should Includes elastic head strap for best fit viii. Should be Transparent PVC mask enables clear visualization of patient ix. The Swivel connector design should ensures uninterrupted flow of oxygen from the bag to the patient x. Should have All sizes include 7' three channel oxygen tubing xi. Should have Pliable nose clip helps keep mask in place xii. Should be Available as non-rebreather or partial non-rebreather xiii. Should have Designed with two valves on the non-rebreather; one on the partial non-rebreather xiv. Should be Complied with all standards as per international norms **6. Venturi mask(Disposable)**: i. Venturi Mask is a medical device to deliver a known oxygen concentration to patients on controlled oxygen therapy. ii. **Features should be as follow** : a) Disposable Single patient use. b) Non-Sterile packed sealed in Pouch.	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (Med)

Recommended / ~~Not Recommended~~

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	c) Easy adjustable, Variable venture system ensures fixed & accurate concentrations of oxygen. Color Coded, air entrainment low and medium concentration diluters. e) Elongated facemask for long term use. f) Clear and soft mask for patient comfort. g) Adjustable elastic strip and integrated nose clip for proper positioning of mask. h) Should have minimum 210 cm long lumen transparent tubing to ensure continuous flow of oxygen. i) Should be available in all Sizes Adult, Paediatric and infant. j) Should be Complied with all standards as per international norms **7. Nasal cannulas(Disposable)**: i. The twin prong / nasal tips designed to ensure equal volume of oxygen to both the air passages with reduced sound of flowing oxygen. ii. Should be made up from non-toxic, non-irritant medical grade PVC material. iii. should be valve less iv. Should be latex free v. should be available in all Sizes Adult , Pediatric and infant vi. Should be Complied with all standards as per international norms	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications Recommendation of ADLs(med) Recommended/Not Recommended
	IV. FACEMASK AND CONNECTOR / ANGLE (Disposable): i. Face Mask (Disposable and all sizes) ii. Should be light in colour and easily available and usable iii. **N95 Face mask** iv. Should be 100% ultrasonically machine manufactured without manual intervention v. Should be Cost efficiencies through automation vi. Higher quality product finishing vii. Should be Hygienic automated production	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	viii. Should be Unique duck bill design ix. Should be Snuggly fit x. Should be Comfortable xi. Should have Less irritation xii. Should have Enhanced visibility for users wearing goggles/specs. xiii. Should be Complied with all standards as per international norms **V. AMBU RESUSCITATION BAGS ADULT & PAED:** 1. Ambu bag should be manufactured by using high quality raw material and latest technology which to be Hand operated for positive pressure to inflate the lungs of an unconscious person who is not breathing and keep him/her oxygenated and alive. 2. Should be Designed in accordance with all standards 3. Should be light weight, high durability and ergonomic design. 4. Should be operable in cold /extreme tropical weather conditions 5. Should be Complied with all standards as per international norms **The Ambu bag should Consists of following :-** i. Silicone self inflating resuscitation bag ii. Rendell-becker transparent face mask iii. Oxygen reservoir with detachable valve iv. Removable POP valve v. International size & standard vi. Oxygen Tube 2 Meter vii. Carry Case viii. Should be Available in Infant, Child & Adult sizes.	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications

Recommendation of ADG(Med)
Recommended
Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	VI. INTUBATION EQUIPMENTS : 1. **Conventional Laryngoscope**. The complete set of conventional laryngoscope, which comprises of conventional laryngoscope with macintosh blades, macintosh blades stainless steel and laryngoscope conventional with miller blades as well as miller blades stainless steel. Should be Designed for ease-of-use to help improve patient care, safety and staff satisfaction. Should be of Innovative Design: Reduced weight for improved balance and maneuverability facilitates even the most difficult intubations to help improve patient care and staff satisfaction. Should have Standardize: Blades easily convert from lamp to fiber-optic illumination making upgrades economical. Should be Durable: One-piece stainless steel construction ensures blade integrity which minimizes corrosion to help improve staff satisfaction and reduce risk. Should be Repairable: Replace deteriorating light pathways for a fraction of the cost of a replacement blade. Should have following features • Stainless steel blades minimize corrosion to help reduce risk • Single-piece construction ensures blade integrity • Our free repolishing service makes these an affordable choice • Handles are built to last, with chrome plated brass • Knurled finish on handle ensures durability and a secure grip.	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (med)
Recommended / Not Recommended

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	• Standard battery handles available in "D", "C" and "AA" "AAA"battery cell sizes • Rechargeable handles utilize nickel-cadmium batteries, guaranteed forfive years • Removable, re-polish able light pipe • Should be Complied with all standards as per international norms 2. **Magill Forceps** Should be Complied with all standards as per international norms and **should have following features** • Fine finish • Easy usage • Precisely designed 3. Stylets 4. Bougie 5. **Endotracheal Tube (Disposable):– Cuffed Nasal/ Oral for managing airway should have following features:** • Should be manufactured from non toxic, non irritant medical grade PVC Compound. • Should be Kink resistant thermo sensitive tube ensures tube potency for patient safety. • Should be Softens at body temperature to conform to the anatomy of the respiratory tract. • The Murphy eye and distal end has a polished smoothness ensuring a non-traumatic intubation and extubation. • Should have Tapered Balloon ends ensure a non-traumatic intubation and extubation. • Should be Kink resistant inflation tube ensures patient safety during cuff inflation and deflation. • Should have Radio opaque line and markings provided on the tube to facilitate the exact location of the tube position.	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (Med)

Recommended / Not Recommended

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	• Should have Standard 15 mm connecter provided at proximal end. • Should be E.T.O Sterile &Pyrogen free. • Should have of following **Sizes:2.0,2.5,**3.0mm,3.5mm,4.0mm, 4.5mm, 5.0mm, 5.5mm, 6.0mm, 6.5m,7.0mm,7.5mm,8.0mm,8.5mm,9.0mm,10mmthe packing should be Sterile, individually packed in peelable pouch pack. • Should be Complied with all standards as per international norms **COMBITUBE(Disposable)**: • DESIGNED FOR DIFFICULT TRACHEAL OR ESOPHAGEAL INTUBATION • The combitubeis a dual lumen tube designed for difficult or emergency airway intubation and ventilation. • The combitubecreates a viable airway whether it is placed in the trachea or in the esophagus. When placed in the esophagus, the EasyTube allows the use of fiber-optic devices, or passage of a suction catheter or tube exchanger. • The risk of tracheal trauma is reduced to a minimum due to the single lumen at the distal tip. • The combitube set includes tube, syringes pre-lled with air, and an extra length suction catheter. • Should be Single lumen at distal tip reduces potential for trauma • High-volume low-pressure PVC cu ff at distal end allows for minimal wall pressure • Should be Soft, latex-free cuff to seal the pharynx • Should Allows the use of fiber-optic devices or passage of suction catheters and tube exchangers through the second lumen when esophageal intubation is achieved • Should be Special placement rings clearly indicate a visible depth marking that can be used for either tracheal or esophageal intubation	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (med)
Recommended/ ~~Not Recommended~~

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	• Should be Large volume syringe, pre-lled with air for the pharyngeal cuff, and small volume syringe, pre-lled with air for the distal cuff , making intubation quick and easy • Should be Size available: 41 fr& 28 fr. • Should be Complied with all standards as per international norms • Adhesive fixers for fixing the endotracheal tube **VII. AIRWAYS :** 1. **Oropharyngeal (guedel) Airway :** • **The guedel air way should have bite block to prevent biting of tongue and airway occlusion.** • **Should be available in all sizes of** adult, child and infant • **Should have colour coding** • **Should have Features like** **Easy cleaning** **Smooth airway path** **Effectiveness** • Should be Complied with all standards as per international norms 2. **Nasopharyngeal Airway :** • **Silicone Rubber Nasopharyngeal Airways** • These are inserted into nasal passageway for securing open airway especially at times when patient is unconscious. • Should be available in thin walled tube finish with smooth outside so cause less harm to nasopharyngeal tissue.	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (med)
Recommended / ~~Not Recommended~~

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired

	• The shape should be in conformance to nasopharyngeal structure so that makes them easy to insert.
	• There should be presence of atraumatic tips of airways to ensurecomplete ease of insertion alongwith minimizing damages caused to nasalpassage.
	• Should be constructed from superior grade silicone material
	• **Should have following Features:**
	  • Precision designed and finished range of Nasopharyngeal Silicone Rubber Airways
	  • Finding suitability for nasopharyngeal anatomy based processes
	  • Smooth rounded edges to allow no damages to inside of nasal passage
	  • Allowing for trauma free usage
	  • Kink resistant
	  • Comes with adjustable stop to maintain exact tube position
	  • Should be available in all sizes.
	  • Should be Complied with all standards as per international norms
	
	3. Laryngeal Mask Airway for managing airway (Disposable):
	Should have following features :
	• The mask and its tip is anatomically engineered to provide an optimal seal within the hypo-pharynx.
	• Clear transparent tube to enable to detect any airway obstruction.
	• Separate inflation line enables the user to move away the line from the teeth of the patient to prevent accidental cuff deflation.
	• Standard 15 mm Connector facilitates easy connection to the anesthesia circuit.
		Board should check physically during demonstration.
		
		OEM should submit an undertaking and documents in this regard.
			As per specifications

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (med)

Recommended / ~~Not Recommended~~

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	• Pilot balloon for easy inflation and deflation of cuff. • Should be made of 100% silicon or PVC. • Should be Available Sizes : 1.0, 1.5, 2.0, 2.5, 3.0, 4.0 and 5.0 • Should be Individually packed in paper poly pack • Should be Complied with all standards as per international norms **VIII. Oxygen saturation monitors with different probes for adult and child.** **IX. Others (Disposable)**:LMA/ I Gel binasal cannula, combitube, COPA (all sizes) **X. Miscellaneous :** **1. Percutaneous Tracheostomy Kit(Disposable)**: for emergency tracheostomy • Tracheostomy kit should have cuffed &un-cuffed tube of all sizes) should have filters, stoma covers and cleaning brushes **2.** Crico-thyroidotomy kit**(Disposable)**: • It allows quick and safe access for ventilation in the presence of acute respiratory distress with upper airway obstruction. • The kit should consists of a preassembled emergency cricothyrotomy unit with a 10-milliliter syringe, padded neck strap and a flexible connecting tube. **Specifications should be as follows:** • Conical plastic cannula with fixation flange and 15 mm connector • Removable stainless steel cricothyrotomy needle • Removable safety stopper • Preassembled and ready to use • Sterile • Single Use • Latex-free • Should be Complied with all standards as per international norms	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O

Recommendation of ADL/med

Recommended / Not Recommended

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
B.	**Monitoring Device :** **Multi parameter monitors and end tidal CO2 monitor.** 1. Multi parameter Monitor with ECG, NiBP, SpO2, Respiration,etCO2(capnography) and Temperature 2. The Monitor should be single light weight mobile system for easy transportation should not be more than 2.5 kg including rechargeable battery. 3. The Device should have battery backup of minimum 2 hours of monitoring 4. Should have minimum colorTFT display of 7"inches. 5. The device should have displays in mode : a) ECG curves b) Heart rate, pulse rate, c) oxygenation d) SpO2Plethysmogram e) Respiration, f) etCO2(capnography) g) Temperature 6. The monitoring system should monitor single or 6 channel ECG, SpO2Plethysmogram, HR &NIBP 7. Should have alarming system 8. Should be shock resistant (drop test compliant) 9. The unit should comply with all international standard with Quality standards : i) Should have CE or FDA certification ii) Should comply with relevant IEC certification iii) Should have vibration and electromagnetic compatibility iv) It should have certificate of AIR WORTHINESS.	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADC(Med)

Recommended/ Not Recommended

Appendix-2F (xxxi)

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
C.	**Defibrillation : Automatic external defibrillator :** **PORTABLE AUTOMATIC EXTERNAL DEFIBRILLATOR :** • Should include rechargeable battery. • Color display of about minimum5.0 inches. • Operating time: Approx. 5.5 h of monitoring • Charging time from 0 to 95%: Approx 3.5 h • The Operating Conditions should be: 0^0C to 50^0C, • The Relative Humidity should be: 5% - 95%, • The Storage Conditions should be: between 0^0C to 50^0C. **Information displayed:** • ECG curve: I, II, III, aVR, aVL, aVF • ECG lead via defibrillation electrodes • Heart rate (30 to 250 /min) • Pulse rate (30 to 250 /min) • Oxygen saturation (45-100%) • SpO2plethysmogram • Defibrillation energy **Defibrillator** • Shock form: biphasic, current-limited, impedance-compensated • Energy level: Can be set from 1 J to 200 J • Charging duration: Approx. 8 s (200 J) • Shock sequence: Can be programmed: Constant or escalating • Duration of analysis: 8 s • Duration between cardiac rhythm analyses can be set: 75 to 300 s	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG(med)

Recommended / ~~Not Recommended~~

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	Controls: Illuminated ON/OFF buttons **Indicators:** LED Lights, Sound Indicators & Voice Message for check functions **Alarm system** • AED mode should provide adjustable audio, visual prompt, preferably in HINDI. • Voice Prompts: Extensive voice prompts shall guide users through operation of the unit and CPR. **CPR Pacing:** Metronome, • Adjustable alarm limits for all measurements • Auto-alarm function • Pausing of the acoustic alarm output • Audible alarm can be adjustablewith cancelation • It should provide alarm in event of asystole and VF/VT and VF/VT alarm can be deactivated • Adjustable start configuration **Start mode:** AED mode, Monitor mode, Manual mode • Should have protection against elec. Shock and magnetic Protection • Degree of protection against elec. shock SpO2 / ECG / pad protection • Degree of protection against penetration of dust / water • Should be shock resistant (drop test compliant) The unit should comply with all international standard withQuality standards i. Should have CE or FDA certification ii. Should comply with relevant IEC certification iii. Should have vibration and electromagnetic compatibility iv. It should have certificate of AIR WORTHINESS	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADs(Med)
Recommended/ ~~Not Recommended~~

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	Optional features. • Non-invasive blood pressure measurement • Measurement range for systolic blood pressure: 40 to 260 mmHg • Measurement range for diastolic blood pressure: 20 bis 200mmHg • Tourniquet function • Interval measurement: 30 s to 60 min • Start view: Curve view, parameter view	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications Recommendation of ADG (Med)
D.	**Infusions :** **I. SYRINGE INFUSION PUMPS :** 1. Mains /Battery operated with battery backup. 2. Portable and light weight 3. Flow rate O.01ml -999.9ml/hr depending upon syringe size 4. Bolus/KVO 5. Bolus delivery with preselection (1min-24hr) 6. Dose calculation: Automatic calculation of the delivery rate based on dose entries in mg, mcg, IE or nmol. 7. Display at screen: infusion rate, occlusion pressure limit setting, current occlusion pressure, battery level, main mode, infused volume, infusion therapy time and infusion status. 8. Mechanism to prevent free flow during syringe change. 9. Syringe Pump 10. Should be portable and light weight 11. Should have following technical 12. parameter:- i. Flow rate 0.01-999.9 ml/hr. ii. Bolus rate -1 -1800 ml/hr.and Bolus Volume 99.99 ml. iii. Bolus delivery with pre selection (1 min -24 hr).	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications Recommended Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.D

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	iv. Dose calculation: Automaticcalculation of the delivery rate basedon dose entries in mg, ug, IE ornmol. v. Display at screen: Infusion rate, occlusion Pressure limit setting,current occlusion pressure, batterylevel, Main mode, Infused volume,Infusion therapy time, and Infusionstatus. vi. Drug Library: more than 600 with 15user interference. vii. Event Storage -1000 events or more. viii. Mechanism to prevent free flow during syringe change. ix. Should have warning audio-visual alarms like occlusion alarm. 13. Should work on battery(lithium) as well as mains 100-240 V AC 14. Should be European CE Approved 15. Accepts all international size syringes 16. Safety certification IEC ,IP 22, CF 17. Defibrillator proof protective class II, 18. CE - 93/42/EWG- Class II b, EN 55011, 19. Should have certificate of AIR WORTHINESS.	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications
	II. I.V. LINES (Disposable): • I.V. Lines I.V. Cannulas (all sizes) three way stop cork,extension I/V lines, Pressure Infusion Bags, I.V.Fluids, micro drip – set & macro drip-set,adhesive fixers		
E.	**STRETCHERS AND SPLINTS :** **I. AUTO LOADER COLLAPSIBLE STRETCHER CONVERTIBLE TO WHEEL CHAIR :** • The auto loader should have 04Nos. 200 mm dia wheels with minimum two swivel types. One person should be able to easily load and unload the fully assembled auto loader stretcher into an ambulance.		

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (Med)

Recommended / ~~Not Recommended~~

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	• Weight of the complete auto loading stretcher unit should be less than 50kg and should be built with anodized aluminium material. • The lift off stretcher should feature of reverse patient loading. Should feature a shock frame and contour frame. • Should have swing-down side rails to enable convenient patient transfer from bed to stretcher. • Should have adjustable backrest with minimum 6 positions from 0-90 degree. • Should have brake on wheels to ensure that the stretcher doesn't move while standing. • Loading height should be maximum 65 cm. • The stretcher should load seamlessly and should have at least three strap-type restraining devices (chest, hip, and knee) to prevent longitudinal or transverse dislodgment of the patient during transit. • The stretcher mattress should be made with water proof upholstery. Load bearing capacity of the unit should be minimum 210Kg. • Should have provision for telescopic IV pole. Minimum Length should be 190cm. • Minimum width should be 60cm. Minimum height should be 80 cm. • The Ambulance auto loading stretcher should be EN 1865 / EN 1789 Certified. EN 1865 / EN 1789 Certificates should be from notified body under the respective standard **II. SCOOP STRETCHER :** • It should be Lightweight, portable, easy to carry and have thermally treated polymer construction.	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG(med)

Recommended / ~~Not Recommended~~

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	• Should have twin safety lock mechanism for smooth locking and unlocking. Should have four telescopic adjustments of length options for patients of different heights. • Width should be minimum 17 inches. It should be X-ray and MRI compatible. • Should have narrow foot-end frame for improved handling in confined areas and hallways. • The total weight should not be more than 8Kg. Load bearing capacity should be minimum 200Kg. • Should have minimum three patient restraint straps and should be foldable for compact storage. • Suitable arrangement is to be made on the side walls of the ambulance for mounting of Scoop Stretcher. • The stretcher should be EN 1865 / EN 1789 Certified(CE Certificates should be from notified body under the respective standard.		
	III. SPINE BOARD : • It should be made of High Density Polyethylene plastic with polyurethane foam fill. • It should be rigid and lightweight board. • It should be X-ray & MRI compatible. • It should be easy to clean and should not be affected by bodily fluids. • Its maximum weight should not be more than 7 Kg. • It should have load bearing capacity of minimum 200Kg. • Should include minimum three patient restraint straps and should be compatible with head immobilizer. • Suitable arrangement is to be made on the side walls of the ambulance for mounting of Spine Board. • The stretcher should be EN 1865 / EN 1789 Certified**(EN 1865 / EN 1789 Certificates should be from notified body under the respective standard)**.	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (Med)
Recommended / Not Recommended

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
F.	**IMMOBILIZATION DEVICES :** 1. **Cervical Collars(Disposable)**:Rigid for children ages 2yearsor older infant child and adult sizes (small medium large and other available sizes) 2. **Head immobilization device (not sandbags):** Firm padding or commercial device. 3. **Lower extremity traction device:** Lower extremity, limb-support slings padded ankle hitch, padded pelvic support, traction strap (adult and child sizes). 4. **Upper and lower extremity immobilization device:** To immobilize one joint-above and joint below fracture (adult and child sizes). 5. **Radio lucent back boards (long short) Extrication device:** Joint-above and joint –below fracture site (chin strap alone should not be used for head immobilization)' adult and child sizes,with padding for children hand holds for moving patients short (extrication, head-to-pelvis length), long (transport, head t0 feet) with at least 3 appropriate restraint straps	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications
G.	**Miscellaneous :** 1. Sphygmomanometer (infant, paediatric and adult regular, large and extra large) 2. Stethoscope (paediatric and adult) 3. Digital Thermometer 4. Heavy duty scissors for cutting clothing, belts and boots 5. Flashlights (2) with extra batteries and bulbs. 6. Thermal absorbent blanket and head cover, aluminium Foil roll, or appropriate heat-reflective material(enough to cover newborn) 7. Appropriate heat source for ambulance compartment 8. Invasive monitoring **(Disposable)**: Central line Arterial cannulas (all sizes) with transducer. 9. Burn Pack**(Disposable)**: Standard package, clean sheets (or towels for children) 10. Cold packs	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADGMed
Recommended/ ~~Not Recommended~~

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
H.	**OTHERS(Disposable)**: Cotton, bandage, savlon, betadine, leucoplast, surgical gloves, disposable gloves, disposable LP needles, ABG syringes, ECG electrodes, Sterile dressings(various large and small sizes),sterile gauze rolls(various sizes),sterile occlusive dressings, adhesive tapes of various sizes, elastic bandages, waste bin for sharp needle etc,bite block/teeth guard,disposable bags for vomiting etc, sample collection kits.	Board should check physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specifications

09.QRS/SPECIFICATIONS AND TRIAL DIRECTIVES OF "BIPAP MACHINE"

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
1	SPECIFICATION FOR **BIPAP MACHINE**: 1. Should have C.P.A.P./Spontaneous /Auto modes 2. Should have fixed backup rate of 10 breaths/minutes 3. I.P.A.P. Pressure range 2 to 25 cm H2O in increment of 0.2 CMS H2O. 4. E.P.A.P. Pressure range 2 to 25 cm H2O in increment of 0.2 CMS H2O 5. Should be able to detect leak, display tidal volume, respiratory rate, and pressure. 6. Should be able to set rise time 7. Should provide 2 reusable masks (one face and one nasal) with the machine. 8. Should have a facility of automatic on/ off on the machine. 9. Should be quoted with comprehensive warranty, as per rules (including all spares, batteries, circuit and accessories) and another five year of maintenance warranty 10. Prices of all spares and accessories valid from 6- 10 years should be quoted along with their warranty and period.	The board should physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specification

Member-I | Member-II | Member-III | Member-IV | Member-V | Member-VI | Member-VII | Member-VIII | Member-IX | Member-X | Member-X | Member-XI | Member-XII | P.O.

Recommendation of ADG(med)
Recommended / Not Recommended

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	11. Additional accessories (prices should be included with each machine along with the machine): a) Full face mask :05 b) Nasal mask: 03 c) Extra set of connecting tubing Should have safety certificate from a competent authority CE / USFDA / STQC CB certificate / STQC S certificate or valid detailed electrical and functional safety test report from ERTL.		

10. QRS/SPECIFICATIONS AND TRIAL DIRECTIVES OF "OPERATION THEATRE LIGHT CONTROL OVER HEAD SHADOWLESS LAMPS 07/05 BULBS"

Recommended at ADS(med)

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
1	SPECIFICATION FOR SPECIFICATIONS OF OPERATION THEATRE LIGHT CONTROL OVER HEAD SHADOW LESS LAMPS 07/05 BULBS: 1. High end portable OT light with Shadow less LED technology 2. Should be Mounted on stand with 4 castors 3. Should have Reflector based Technology 4. Should have Scratch resistant glass base 5. Should have aluminum light head for better heat sink . 6. Should have Free movement of light arm by sterilizable handle mountedon light head 7. Multifunctional light handle 8. Should have Integrated Rechargeable battery backup 9. 05 years Comprehensive warranty and 05 years CAMC 10. All components should have US FDA / European CE/ISO 13485/BIS certified. 11. Vendor should quote prices of all accessories separately. 12. System Should have the following technical features A. Illumination of light: 120,000 Lux or more B. Dimming: 30 -100%	The board should physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specification

Recommended/ Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	C. LED life: More than 60,000 hrs D. Light field diametre: 160 -230 mm E. Depth of illumination(L1+L2) : >/= 900 MM F. Color temperature: Adjustable 3500-5500 K G. Color Indication !ndex: Minimum 96% H. Weight of Light Head : Less than 15 kg I. Power consumption : less than 55 W J. Total Irradiance: less than 500 W/m2 K. Temp increase at surgeons head should be less than 1 degree L. Integrated Rechargeable battery backup service for Minimum 4 hrs to operate the light in case of main power failure M. Battery Charging time should be less than 3 hrs. N. When used on battery no power cords to be attached for easy movement of Mobile light. Should have safety certificate from a competent authority CE / USFDA / STQC CB certificate / STQC S certificate or valid detailed electrical and functional safety test report from ERTL.		Recommendation of ADG (med) Recommended/ Not Recommended

11. QRS/SPECIFICATIONS AND TRIAL DIRECTIVES OF "ELECTRO HYDRAULIC OT TABLE WITH MANUAL OVERRIDE"

1.	**SPECIFICATION FOR ELECTRO HYDRAULIC OT TABLE WITH MANUAL OVERRIDE: ·** 1. the OT table should be electro hydraulic and should be operated manually and electrically. 2. The table top should be X-ray translucent for fluoroscopy with 'C' arm and radiolucent mattress. It should have the facility to load X-ray cassettes to the table or under the table top by using X-ray cassette holder attachment with clamp. 3. The table should have the facility to operate high, low, lateral left/right, trendelenburg and reverse trendelenburg movements, flex and reflex position and longitudinal shift. All movements should be electro hydraulic and should be operated by hand control.	The board should physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specification

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	4. Inbuilt Kidney Bridge or Break position or motorised kidney elevator 5. Should have a manual override function for all major positions (up, down, flex reflex, side tilt, slide etc)and movements with an additional control unit which can be operated manually without any requirement of power. 6. Radiolucent five section table top in head section, back section, seat section with perineal cut with facility to seal the perineal cut has to be provided, split leg section and inbuilt kidney bridge or inclinable back extension which performs the same function of kidney bridge Table should have interchangeable positions of head plate and leg plate so that they can be interchanged with each other on either end 7. All metal components of the table should be of corrosion resistant aluminium or stainless steel which is disinfected proof with four antistatic castors with caps and central locking facility. The base column should have telescopic cover of stainless steel and fibre glass/ABS laminate to prevent ingress of fluid into the system. 8. The remote control should have clearly labelled LED / graphic display control panel with push button for main adjustments such as height, lateral, back section, trendelenburg/Reverse trendelenburg and return to basic/0 position with indication of load control of the battery sufficient for weekly use. Should also have the sliding movement function in remote control. Should also have feature of having a reverse position button to recognise the changed head and leg end in case the head and leg sections have been interchanged 9. Should have stainless steel accessory rail on both sides to hold various accessories. 10. The table should have manual movement control facility in case of remote failure and also operate on mains/battery power with internal/external charger.		Recommendation of ADG(med) Recommended/ Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

S.No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	11. The table should be integrated with a self-diagnostic program which will show the error code either on screen of remote or when attached to computer in the software, when the error is detected. 12. The mattress should be seamless and separate for each section 13. The table should have soft start function for fine adjustment of positioning. Technical Data: a) Minimum,– 650 -700 mm or below and maximum 1100 mm or above (both maximum and minimum height is without mattress) b) Slide till + 20° c) Back section adjustment 30° to 70° up, 40° down d) Leg section adjustment 90° down, 10° up e) Trendelenburg: at least 25-35° f) Head rest +25 g) Longitudinal Shift300 mm or more and should be able to slide on both the ends h) Max width 540 mm or better i) Length 1960 mm or better j) The table should be able to take the weight of 400 kg or more in normal mode and 225 or more in reverse mode or reverse orientation safety standard: a) Electrical IEC 60601-1, medical/ electrical equipment for safety b) IEC 60601-2-46 for safety of OT tables c) IEC 60601-1-2 for electromagnetic compatibility (Test reports for the same should be submitted) for the quoted model		

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (med)

Recommended / ~~Not Recommended~~

12. QRS/SPECIFICATIONS AND TRIAL DIRECTIVES OF "OXYGEN GENERATION PLANT 200 LPM"

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
1	**TECHNICAL SPECIFICATIONS OF MEDICAL OXYGEN GENERATION PLANT 200 LPM ALONG WITH ALLIED EQUIMENTS** 1. Compressed Air system consisting screw type compressor (2 numbers to be supplied with PSA system) (i) The oxygen concentrator should be supplied with Air compressor system to meet the peak load at atmospheric air and pressure requirement. (ii) The compressor should be suitable as per site conditions, for working pressure of 7.5-8 Bar, fitted with electric motor, three phase, AC 415 ± 1% volts, 50 Hz frequency , rotary screw element complete with dry paper type suction air filter with silencer, conveniently located for easy replacement of filter element with integrated regulating valve for load/ unload control system, simple design with only one moving part, need no regular adjustment, three way solenoid valve required for load/ unload regulation of the compressor, air/ oil temperature sensor to sense the air oil temperature, electronic controlled that optimizes operations of the compressed system, should act as intelligent user interface for improved navigation, should monitors , controls ,protect the compressed system. (iii) Start/ Stop for starting/ stopping the compressor having inbuilt display unit with the keypad users interface for indicating the following messages. (iv) Operation Type: Automatic loading and unloading of Compressor Control Type : Local, Remote & Computer Timer Activated / not activated, Discharge Pressure, running hours, loading hours, regulator hours, service Plan. (v) Compressor Package is enclosed in a powder coated acoustic canopy with sound absorbing material for limiting the noise level. Canopy is pressurized ensuring no pressure drop at suction filter and avoids entry for dust particles in the element in the anti-vibration mounts support electric motor and compressor unit and isolate the moving components from the rest of the structure. The desired working pressure of the compressed dry air should be 7.5-8.0bar. (vi) Compressed air system comprising of screw air compressor, air cooled with PLC based control panel coupled with motor assembly.	The board should physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specification Recommendation of ADG(med) Recommended/ Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	(vii) The compressor should be capable of delivering air as required for PSA, pressure swing adsorption generator. (viii)The compressor shall have to be with all standard accessories compatible with oxygen generator. (ix) The flow capacity of the compressor and delivery pressure shall be as specified by Core PSA Medical Oxygen Generator service provider. The motor rating shall be suitable for air compressor. (x) Average ambient conditions to be considered for air compressor with regards to temperature and site elevation. The site should be able to work in all weather conditions. (xi) The air compressor shall be manufactured to internationally acceptable standards with CE mark and ISO 9001 and ISO 13485 certification. ISO 8573-1: Compressed air – Part 1: Contaminants and purity classes. ISO 8573-2: Compressed air – contaminant measurement – Part 2: Oil aerosol content. ISO 8573-4: Compressed air – contaminant measurement – Part 4: particle content. ISO 5011: Inlet air cleaning equipment for internal combustion engines and compressors – performance testing. (xii) Intake air temperature shall be conditioned to between (minus)10 to +55 deg C and ≤95% RH (or plant operating conditions as indicated by supplier). (xiii)It should be supplied with all accessories for full installation and operation - flywheel, foundation bolts, motor pulley, v-belts, belt guard, and slide rails for the motor. (xiv)EFF1 (CEMEP) rated totally enclosed fan-cooled, IP55 class F electric motorsshall be used and incorporate maintenance- free greased for life bearings. Motors with lower (equivalent) efficiency ratings are not acceptable.		

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (med)

Recommended/ Not Recommended

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	2. Refrigerant Air Dryer: (i) Refrigerant type Air Dryer should have inlet pressure equal to outlet pressure from Air compressor, inlet air temperature less than 45°C, ambient temperature +0°C to +45°C, dew point temperature of maximum +3°C and inlet air capacity compatible to air delivery of 7.5-8 Bar pressure. (ii) The dryer shall be provided with power supply as required by dryer vendor. (iii) It should be equipped with safety valves. It should be of simple plug and play concept. (iv) The pressure shall be self-regulating. (v) The dryer shall include the following components: a) Refrigerant Circuit □ Refrigerant separator and compressor □ Maximum pressure switch and fan control switch (FX 13-21) □ Condenser fan and condenser □ Capillary filter and tube □ Hot gas bypass b) Air Circuit □ Air inlet to refrigerant heat exchanger □ Air/heat exchanger □ Water separator □ Automatic drain □ Air outlet 3. Air Receiver: (i) The system should be provided with an Air Receiver having the specific capacity and should be designed in such a way to sustain pressure of 7.5-8 Bar. (ii) The air receiver should be fabricated as per ASME Sec VIII Div.1 or IS 2825 Code or equivalent and fitted with 2 Nos. auto drain-out moisture filters. (iii) A corrosion allowance of 3 mm shall be considered.		

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (med)
Recommended/ Not Recommended

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	(iv) The receiver vessel shall be provided with a pressure gauge, safety valve and auto drain valve. (v) Vertical floor mounted design equipped with pressure gauge, safety release valve, manual and automatic, zero-loss drain valve (float-type are not acceptable). (vi) The receiver assembly shall be fitted with a pressure safety valve capable of passing the maximum flow output of the compressor at 10% receiver overpressure. 4. Filtration system for the compressed Air: (i) Feed air quality of the oxygen concentrator should be conforming to ISO 8573 Class 4 and is of filtration grade of 0.01 micron. (ii) The filtration system should include both inlet filtration comprising of micro filter and active carbon filter as well as outlet filtration comprising dust fine filter. (iii) Type of filters to be specified in terms of Prefilter (>5 micron); Fine filters coalescing filter (0.1 micron); and coal filter (coal tower, alternatively activated carbon filter). 5. Molecular Sieve Units: (i) The plant should comprise of duplexed air treatment/molecular sieve devices to permit continuous generation of oxygen: two sets of filters and a pair of molecular sieves. (ii) One of the pairs of duplex sieves will be in the adsorbing stage, whilst the other regenerates. (iii) Each vessel will have dual gas baffle and strainer assemblies to protect and contain the molecular sieve. (iv) Each molecular sieve shall be a high-performing chemically produced zeolite as the molecular sieve media that has been compacted to the correct density by means of vibration to adsorb specific types of molecules (such as water vapour or nitrogen).		Recommendation of ADG (Med) Recommended Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	(v) Pneumatic valves shall control the generation and regeneration process to ensure proper changeover between the two sieve devices. (vi) A vacuum pump may be required as part of the system. The vacuum pump, if provided, is utilized during the adsorption/regeneration process. 6. Oxygen Concentrator Module : i) Fully automated system Microprocessor based oxygen concentrator module, duplex process valve system with PSA (Pressure Swing Adsorption) Technology. a) Each module should be able to produce medical grade oxygen purity of 93% ± 3%. The oxygen should be of medical grade and shall be supplied through oxygen outlet at minimum pressure of4.2-6 bar at all times of operations of the generator. b) Automatic shut off valve should be installed to control the medical oxygen purity and pressure. c) The oxygen concentrator system shall have PSA sieve beds with touch screen for display of size not less than 5" for constant quality control by measuring oxygen purity, outlet pressure, instruction manual, curves of oxygen pressure, basic setting, alarm facility for process a cycle failure, low oxygen pressure, maintenance alerts, process overview with valve operation and an analogue values. d) In case of valve malfunctioning the panel shall have diagnostic tool to pin point exact values in question for fast service. e) The plant should be able to deliver medical grade oxygen at Indian Pharmacopeia monograph quality standards. ii) Medical Oxygen (As per Indian Pharmacopeia 2018- Oxygen 93%). Oxygen 93% contains not less than 90.0 percent and not more than 96.0 percent v/v ofO2 Oxygen Purity: 93% +/- 3%		

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG(Med)
Recommended / Not Recommended

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	CO: <5 ppm CO2: < 300 ppm Water Vapour< 67ppm SO2: 0 ppm NOx : 0 ppm iii) Maintenance Free self-lubricating, heavy duty valve section, angle seat pneumatic valve technology for constant availability of pure oxygen. The inlet pressure sensor shall be included in the scope of the contract. iv) The oxygen concentrator should have built in Zirconium/Ultrasonic/Galvanic type oxygen sensor with Oxygen Analyzer with digital display having automatic backup control system also fitted with Medical sterile and bacterial filter. v) Operating Temperature range (minus)50 C to +550C vi) Humidity: up to95% vii) Electrical Supply – 220-240VAC, single or 3 Phase. It may vary as per the requirement of the site and the plant size. viii) Should be Automatic and designed for unattended operation (but to be strictly monitored by service provider with all safety measures required to ensure non-stop operation when power goes off and supply should have a backup tank for storage of oxygen in tank of proper capacity case power is off due to load shedding maintenance etc. 24x7 in 3 shifts) ix) Should have silencer: Silencer reduces air discharge noise to less than 65dBA. x) All the Certifications should be provided by Original Equipment Manufacturer a. It should have ISO 9001:2008 certification b. Oxygen Generator must have US FDA (United States, Food and Drug Administration) or CE Certificate/ CE (Conformity European) / EC (European certificate), certification of the Original Equipment Manufacturer.		

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (med)
Recommended / Not Recommended

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	c. ISO 13485: 2016 certification – for design of medical systems d. ISO10083/ENISO7396-1/EN737-3European Standards and should be in accordance with medical device directives 93/42/EEC or Medical use international standard regarding the supply of oxygen via oxygen generators for a use in medical gases distribution networks. xi) In case of the bidder supplying Imported PSA Plant, he should give a certificate from the OEM that the generator offered by the bidder (its brand and its model Number) is manufactured by the OEM as a medical grade oxygen generator and sold as such in INDIA. 7. Oxygen Analyser: The oxygen Analyser should be from Core PSA/Same OEM plant supplier only. Local makes or after- market devices shall not be accepted. Analyser shall meet the following specifications to ensure long term reliability (i) Sensor –rated for use with PSA oxygen production (e.g. ultrasonic, galvanic, or equivalent), to be specified by bidder (ii) Measurement range: 21-96% O2 (lower or higher acceptable) (iii) Resolution: 0.1% across all measurements (iv) Accuracy : +/- 3% (v) Operating conditions – Temperature, (minus)10 to +55 deg. C., Relative humidity, 15%-95% (vi) Calibration: minimum required depending on sensor type, to be specified by bidder (vii) Historical Logging of all alarms (viii)Real Time trending curve of Oxygen Purity, Pressure etc. 8. Oxygen Product Receiver: i) The oxygen receiver tank shall be of capacity as specified by Core PSA Medical Oxygen Generator service provider. ii) Nominal operating pressure shall be based on maximum rated pressure for tank, both to be clearly indicated.		Recommendation of ADG (med) Recommended Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Appendix-2F (XLX)

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	iii) The vessel shall be designed and manufactured as per ASME Section VIII Div 1 Or Equivalent. iv) The Service provider shall maintain design calculations. A corrosion allowance of 1.6 mm shall be considered. v) The receiver vessel shall be provided with a pressure gauge, safety pressure release valve and auto drain valve. vi) Vertical floor mounted design equipped with pressure gauge, safety release valves. 9. Automatic change over Panel The automatic change over panel shall be compatible with oxygen Plant. The Cover of Panel shall be made of SS/MS duly powder coated. Automatic Change over Panel should maintain the following: i. Continuous pressure ii. Continuous Flow iii. Purity of Oxygen iv. Power failure 10. Main Electrical Panel: (i) The Main electrical control Panel should be compatible with Oxygen plant and allied equipments. (ii) The Panel should have automatic starter, overload protection, single phase preventer, timer assemblies, emergency stop buttons and indication lamps etc. for successful operation of all the components of the Oxygen plant. (iii) Equipment shall be earthed in an approved manner as per I.E.E. rules and acceptable to the local authority. (iv) Earthing station shall be provided by the Service Provider. No medical gases pipe shall be used for electrical earthing.		

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADLs (med)
Recommended / Not Recommended

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	(v) Entire installation shall be done taking care to follow all safety regulations under BIS standards for electrical installation of oxygen generation plant. (vi) Charging of the panel to me included in the scope of work(This requires Cable lying, electrification work from the main panel and earthing works).The entire cabling from the mains to the panel should be armored cable up to 30 mtrs only. (vii) The control panel provided with plant should have following features as minimum: □ LCD illuminated display. □ Meters □ Pressure in product tank is visual on the display. Range is adjustable □ Prepared for oxygen purity monitoring. Range is scalable in the control panel □ Alarms - All alarms described on the controllers display for easy and fast recovery. Alarms on air dryer and air compressor should be monitored by the controller (requires digital signals) □ Drain Control - Automatic drain control for the air vessel to ensure proper air quality □ Smart delivery - Intelligent delivery based on pressure and purity □ Service indicator - The system should automatically detects when the service is needed (based on operating hours) and should display a message 11. Alarm System (i) Providing and fitting of Main Alarm Panel to indicate any abnormality of gas pressure and other failures of the system. Job includes providing of Medical Gas Alarm System for 01 services viz. oxygen. (ii) The Alarm System consists of an isolation valve box, pressure sensors, circuit plate with LED colour indicators for visual indications. (iii) The Gas Alarm system is sensitive to detect any pressure drop in the supply pipelines.		Recommendation of ADG (med) Recommended / Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	Maintenance of all the equipments of Oxygen Plant and comprise of consumable items, Consumable/ lubricants , filters, UPS, Batteries for complete servicing of equipments or replacement of any spares as well which may develop defect during said period. The servicing shall be carried strictly as per maintenance schedule of OEM. The replacement of Zeolites should be included in warranty and CAMC period. Warranty as well as Comprehensive Maintenance contract will be inclusive of all accessories supplied as per Technical Specifications and it will also cover the following wherever applicable:- ☐ Any kind of motor. ☐ All kind of sensors, ☐ All kind of coils. ☐ consumable items ☐ Consumable/ lubricants ☐ filters ☐ UPS including the replacement of batteries. ☐ replacement of Zeolites 18. Life Span: Minimum 15 years and certificate in this regard should be from OEM. Vendor should also certify the availability of all the parts/spares/accessories delivered with the equipment to be available for 15 years. Certification from the OEM should be produced in this respect. Quality Certificates: a. Copy of ISO certification or GMP Certificate of its original equipment manufacturer. b. ISO 13485: 2016 certification – for design of medical systems c. ISO 10083/ EN ISO 7396-1/ EN 737-3 European Standards and should be in accordance with medical device directives 93/42/EEC or Medical use international standard regarding the supply of oxygen via oxygen generators for a use in medical gases distribution networks.		Recommendation of ADLs (Med) Recommended / Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	d. The Medical grade oxygen concentrator/generator shall be either US FDA approved or CE or should have CE(Conformity European)/European Certificate(EC) number and a certificate that the oxygen generated complies with Medical grade standard of the OEM .		

13. QRS/SPECIFICATIONS AND TRIAL DIRECTIVES OF "OT TABLE (ELECTRIC REMOTE OPERATED WITH 100% RADIOLUCENT TABLE TOP FOR MULTIPLE APPLICATOR"

S. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
1	SPECIFICATIONS OF OT TABLE (ELECTRIC REMOTE OPERATED WITH 100% RADIOLUCENT TABLE TOP FOR MULTIPLE APPLICATOR: 1 the OT table should be electric remote operated with 100% radiolucency. 2 The table top should be X-ray translucent for fluoroscopy with 'C' arm and radiolucent mattress. It should have the facility to load X-ray cassettes to the table or under the table top by using X-ray cassette holder attachment with clamp. 3 The table should have the facility to operate high, low, lateral left/right, trendelenburg and reverse trendelenburg movements, flex and reflex position and longitudinal shift. All movements should be electro hydraulic and should be operated by hand control. 4 Inbuilt Kidney Bridge or Break position or motorised kidney elevator 5 Should have a manual override function for all major positions (up, down, flex reflex, side tilt, slide etc)and movements with an additional control unit which can be operated manually without any requirement of power.	The board should physically during demonstration. OEM should submit an undertaking and documents in this regard.	As per specification

Member-I | Member-II | Member-III | Member-IV | Member-V | Member-VI | Member-VII | Member-VIII | Member-IX | Member-X | Member-X | Member-XI | Member-XII | P.O.

Recommendations of ADG (med)

Recommended

Appendix-2F (XLIV)

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	6 Radiolucent five section table top in head section, back section, seat section with perineal cut with facility to seal the perineal cut has to be provided, split leg section and inbuilt kidney bridge or inclinable back extension which performs the same function of kidney bridge Table should have interchangeable positions of head plate and leg plate so that they can be interchanged with each other on either end 7 All metal components of the table should be of corrosion resistant aluminum or stainless steel which is disinfected proof with four antistatic castors with caps and central locking facility. The base column should have telescopic cover of stainless steel and fiberglass/ABS laminate to prevent ingress of fluid into the system. 8 The remote control should have clearly labelled LED / graphic display control panel with push button for main adjustments such as height, lateral, back section, trendelenburg/Reverse trendelenburg and return to basic/0 position with indication of load control of the battery sufficient for weekly use. Should also have the sliding movement function in remote control. Should also have feature of having a reverse position button to recognise the changed head and leg end in case the head and leg sections have been interchanged 9 Should have stainless steel accessory rail on both sides to hold various accessories. 10 The table should have manual movement control facility in case of remote failure and also operate on mains/battery power with internal/external charger. 11 The table should be integrated with a self-diagnostic program which will show the error code either on screen of remote or when attached to computer in the software, when the error is detected. 12 The mattress should be seamless and separate for each section 13 The table should have soft start function for fine adjustment of positioning.		

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O

Recommendation of ADG (Med)
Recommended / Not Recommended

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	14 Should be supplied with following standard accessories: a) Padded Compelling rest with clamps (Pair) 1 pair b) Anesthesia screen with clamp 1 c) Shoulder supports pair clamps 1 d) Padded armrest with straps with clamps 1 pair e) X-ray cassette tray/holder 1 f) Body restraint belt 1 g) Wrist let 2 15 Technical Data: a) Minimum – 650 -700 mm or below and maximum 1100 mm or above (both maximum and minimum height is without mattress) b) Slide till + 20° c) Back section adjustment 30° to 70° up, 40° down d) Leg section adjustment 90° down, 10° up e) Trendelenburg: at least 25-35° f) Head rest +25 g) Longitudinal Shift300 mm or more and should be able to slide on both the ends h) Max width 540 mm or better i) Length 1960 mm or better j) The table should be able to take the weight of 400 kg or more in normal mode and 225 or more in reverse mode or reverse orientation 16 Attachment for Neuro Surgery for Prone, Spine and Beach chair a) Universal Adopter for DORO Universal Basic Unit- 1 no b) Doro Universal Basic Unit- 1 no c) Doro Skull clamp adopter- 1 no		

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Recommendation of ADG (med)
Recommended / Not Recommended

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	d) Doro Skull clamp- 1 no e) Doro head shape head rest- 1 no f) Cross bar attachment with attachment clamp- 1 no g) Doro skull pins Adult- 3 no h) Doro skull pins pediatric- 3 no i) Gel Heal Pad- 1 no j) Cushion- 1 no k) Plexus cushion- 1 no 17 Attachment for Orthopedic Surgery: The table should have a feature of beach chair position and there should be helmet with chin support to put the patient in beach chair position after general anaesthesia. a) Shoulder Surgery (i) Shoulder surgery plate- 1 no (ii) Body support- 1 no (iii) Head rest for shoulder surgery with connector 1 no B) Arm/Hand (i) Large Arm Board (815 X 520 mm)- 1 no (ii) Gel head ring Adult & Pediatric- 1 no each (c) Shoulder Traction (i) System for shoulder traction device: Weightless Shoulder suspension with traction setting up to 18 Kg with a simple turn of tension knob. Boom arm adjustable from 0° to 90°. Including 1 sterile arm holder and clamps to attach to the side rails. It should have a max weight capacity of 200 kg plus. (ii) Pubis/Sacrum/Sternum support- 1 no (iii) Attachment for the Pubis/Sacrum/Sternum support- 1 no (iv) Tunnel cushion- 1 no		Recommendation of ADG(med) Recommended/ Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Appendix-2F (XLXVII)

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	(d) Hunerus (i) Weinberger hand tract. Device-- 1 no (ii) Humerus positioning device with clamp – 1 no (iii) Humeruscountertraction post with clamp 1 no (iv) Cushion- 1 no (v) Gel head ring, Adult & Pediatric- 1 no (vi) Gel heal pads- 1 no (e) Limbs The table should have attachment and feature to enable us to do the tibia interlocking nail with knee and hip suspended at 90degree each and also to give traction to the limb through calcaneum pin in the same position (i) Ortho extension device for treatment of lower limb factures with mounting fixtures- 1 no (ii) Positioning plate for dorsal position- 1 no (iii) Transport trolley for extension device- 1 no (iv) Transfer leg plates for extension device- 1 no (v) Side rail extension- 1 no (vi) Kirschner wire device- 1 no (vii) Knee positioning device with clamp- 1 no (viii) Knee ARTHOSCOPY support- 1 no (ix) Counter traction post for lateral position- 1 no (x) Traction device for Tibial fractures- 1 no F) Spine (i) Buttock support with clamp- 1 no (ii) Knee elbow positioning device- 1 no (iii) Plexus cushion- 1 no (iv) Gel prone head rest Adult & Pediatric- 1 no (v) Cushion for intervertable disc operations- 1 no (vi) Horse shoe head rest- 1 no		Recommendation of ADL(Med) Recommended Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Appendix-2F (XLXVIII)

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	(vii) Adaptor for horse shoe head rest- 1 no (viii) Cushion/Chest roll- 1 no 18 Specification for ENT (a) Head rest connector- 1 no (b) Horse shoe head rest- 1 no (c) Gel Heal pads (d) Chest Roll/Cushion- 1 no (e) CMFS Plate- 1 no 19 Specifications for Gynaecology (a) Urological adaptor- 1 no (b) Swivel mounted rinsing basin with holder- 1 no (c) Transfer leg plates- 1 pair (d) Elbow rests- 1 pair (e) Leg support servo assisted- 1 pair 20 Specifications for Urology (a) Urological adaptor- 1 no (b) Swivel mounted rinsing basin with holder- 1 no (c) Transfer leg plates- 1 pair (d) Elbow rests- 1 pair (e) Leg support servo assisted- 1 pair 21 Attachment for plastic surgery (a) Hand Surgery side table attachment with telescopic leg for height adjustment 1 pair (b) Microsurgical ring – 1 pair (c) Hair transplant support – 1 pair (d) Horseshoe shaped face rest – 1 no		Recommended ion of ADG(Med) Recommended / Not Recommended

Member-I	Member-II	Member-III	Member-IV	Member-V	Member-VI	Member-VII	Member-VIII	Member-IX	Member-X	Member-X	Member-XI	Member-XII	P.O.

Appendix-2F (XLXIX)

Sl. No.	Specifications	Procedure suggested for trial by board of officers	Results expected/ Desired
	(e) Horseshoe shaped head rest adult (big size) – 1 no (f) Horseshoe shaped head rest, small size -1 no Should have safety certificate from a competent authority CE / USFDA / STQC CB certificate / STQC S certificate or valid detailed electrical and functional safety test report from ERTL. a) Electrical IEC 60601-1, medical/ electrical equipment for safety b) IEC 60601-2-46 for safety of OT tables c) IEC 60601-1-2 for electromagnetic compatibility (Test reports for the same should be submitted) for the quoted model.		

(Dr. J Chatopadhayay)
BSF
Member-I

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Recommendation of ADG(Med)
Recommended/ Not Recommended

(Dr. A C Bhardwajan)
IG (Med.), RH, ITBP, Gr. Noida
Presiding Officer

APPROVED / NOT APPROVED

DIRECTOR GENERAL
BORDER SECURITY FORCE