

**TECHNICAL SPECIFICATIONS FOR PRIORITY MEDICAL EQUIPMENT
FOR COVID-19**

Department	COVID-19	Room Name/No.	ICU
Item Code No.	1	Item Description	Patient Ventilator for Critical care ventilator
1. General Description Patient ventilator for critical care, mobile on trolley, model on current production, For use in adult, pediatrics, and neonates			
2. Composition 2.1 Main unit Accessories			
3. Performance Specifications 3.1 Main Unit 3.1.1 Ventilation mode 3.1.2 3.1.3 Tidal Volume 3.1.4 Pressure (inspiration) 3.1.5 Volume (Inspiration) 3.1.6 Respiration rate 3.1.7 Respiration rate (SIMV) 3.1.8 CPAP/PEEP 3.1.9 Pressure support 3.1.10 FiO2 3.1.11 Inspiratory time 3.1.12 Expiratory times 3.1.14 Inspiratory flow 3.1.15 I:E ratio 3.1.16 Pulse oximeter 3.1.17 Nebulizer 3.1.18 Safety pressure relief 3.2.0 Alarms 3.2.1 System alarm			
		Volume Controlled Pressure Controlled Pressure Support SIMV with Pressure support Assist/ Control mode CPAP/PEEP Pulse Oximeter Supports, invasive and non-invasive ventilation 20-2000 ml Up to 80 cm H ₂ O Up to 120 lpm Up to 60 bpm Up to 40 bpm Up to 20 cm H ₂ O Up to 45 cm H ₂ O 21% to 100% Up to at least 2 seconds Up to at least 8 seconds 5-80 lpm From 1:1 to 1:3 Integrated or separate complete with reusable sensors In CMV, SIMV To be provided Audio and Visual; FiO ₂ , Minute Volume, pressure, PEEP, apnea, occlusion, High respiration rate, Disconnect Audio and Visual; Power failure, gas disconnection, low battery, vent inoperative, self-diagnostic	

3.3	Display	At least 18 inches colour LCD touch screen, Display all monitored parameters
3.4	Gas source	Air and Oxygen
3.4.1	Oxygen input	Inlet O2 pressure range 35 psi to 65 psi. Provision for piped oxygen connection complete with oxygen pipe 3 m and wall connector BS type.
3.4.2	Air input	Provision for portable oxygen cylinder complete with regulator, bull nose type and tubing. Inbuilt medical air compressor with filters
3.5	Batter back up	Provided, rechargeable
3.5.1	Back up time	5 hrs approximately
Accessories		
3.6	Trolley Cart	Mobile on four castors Ø100mm, two with brakes.
3.6.1	Tubing support arm	1 pc
3.6.2	Breathing circuit set (reusable)	5 pc
3.6.3	Bacteria filter	10 sets
3.6.4	O ₂ pressure hose	1pc
3.6.5	Air pressure hose	1 pc
3.6.6	Cylinder support	1 pc
3.6.7	Test bag	5 pc
3.6.8	Laryngeal mask	5 pc
3.6.9	Air way, 3 type	5 Set
3.6.10	Humidifier	Heated humidifier 1 pc
3.6.11	Sensor SPO ₂	2 No. (reusable)
4	Physical characteristics	
4.1	Main unit	Mounted on mobile cart
5	Operating environment	
5.1	Power Requirements	240V, A/c 50 Hz, Single phase
5.2	Ambient temperature	10° C to 40° C
5.3	Relative humidity	40% to 90%

Department	COVID-19	Room Name/No.	Renal
Item Code No.	2	Item Description	Vital signs Monitor
<p>1. General Description</p> <p>Vital signs Monitor suitable for use in operating theaters. Should be capable of continuous measuring/ monitoring of the following parameters in adults, neonatal and pediatric.</p> <ul style="list-style-type: none"> • SpO₂ • Temperature • Blood pressure • Pulse Rate 			
<p>2. Composition</p> <p>2.1 Main unit</p>			
<p>3. Performance Specifications</p> <p>3.1 Main Unit</p> <p>3.1.1 The unit should be a model or type on current production capable of measuring/monitoring the following parameters</p> <p>3.1.2 SpO₂, with reusable sensor 0 - 100% ± 3%</p> <p>3.1.3 Pulse Rate 30-300 bpm ± 1%</p> <p>3.1.4 Temperature 0-50⁰C ± 0.1%</p> <p>3.1.5 NIBP Mean 10- 300mmHg ± 5 mmHg</p> <p>3.1.6 IBP Mean 50 – 300mm Hg ± 1 mmHg</p> <p>3.2 Display 10.4 to12.1 inches color TFT colour LCD, preferable touch screen type</p> <p>3.2.1 Resolution about 800X 600</p> <p>3.2.2 6 to 8 waveforms mode with large font</p> <p>3.4 Recorder Inbuilt, thermal array or equivalent</p> <p>3.4.1 Two speed, selectable</p> <p>3.4.2 Port for external printer</p> <p>3.5 Networking Port for networking with Ethernet or equivalent Or Serial Port RS 232</p> <p>3.6 Input In built with provision for connection of external Keyboard.</p> <p>3.7 Storage Capable of storing patient data and transferring to a PC for viewing or printing.</p> <p>4 Safety requirements</p> <p>4.1 Audio and visual alarm For all parameter.</p> <p>4.2 Alarm setting limits Adjustable by user</p> <p>4.3 Low battery indicator Audio and visual alarm</p> <p>5 Internal battery Provided, rechargeable, can operate for at least 3 hours</p>			
<p>5 Physical characteristics</p> <p>5.1 Main unit</p>			

5.2	Dimensions	Portable with a recharge dock or equivalent recharging unit
6	Operating environment	
6.1	Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug, 3m long cord BS type with PE
6.2	Internal rechargeable battery	Maintenance free type, Up to 8 hours operating time
6.3	Ambient temperature	10° C to 40° C
6.4	Relative humidity	40% to 90%
7	Accessories	
7.1	SpO ₂ connection cable and sensor (finger probe), reusable	2 Sets
7.2	Adult cuff	3 Sets
7.3	Pediatric cuff	2 Sets
	Temperature connection cable and probe (reusable)	2 Sets
7.4	Recording paper	20 Boxes
7.5	Thermal head cleaner pen	1 No.
7.6	Grounding lead	1 No.
8	Quality standards	
8.1	Manufacturing standards	IEC 60601-1, ISO 9001 or any other internationally recognized standards
8.2	Conformity to standards	CE marked/ FDA approved or any other internationally recognized documents

Department	COVID-19	Room Name/No.	Renal
Item Code No.	3	Item Description	Oxygen concentrator
1. General Description Oxygen concentrator capable of extracting medical grade oxygen from atmospheric air using PSA system. The unit should be mobile on castors and capable of supplying oxygen to two patients at a time. It should incorporate oxygen monitor facility complete with patient tubing,			
2. Composition			
2.1 Main Unit			
3. Performance Specifications			

3.1	Main Unit	Model in current production
3.1.1	Type	Dual flow with separate flow meter
3.1.2	Purity	Medical grade oxygen at minimum 95% Dry and Oil free Oxygen at rated flow rate Purity to be constant and all flow rates
3.1.3	Flow rate	Min. 2lpm, max. 8lpm
3.1.4	Safety	Shutdown with power failure, high or low oxygen purity
3.1.5	Oxygen purity monitor	To be provided
3.1.6	Humidifier	To be provided
3.1.7	Patient tubing	To be provided
4	Physical characteristics	
4.1	Main unit	Mobile on four castors, 2 with brakes.
	Dimensions	800mm H X 50cm W X 400mm D
5	Quality standards	
5.1	Manufacturing standards	IEC 60601-1, ISO 9001 or any other internationally recognized standards
	Conformity to standards	CE marked or any other internationally recognized documents

Department	COVID-19	Room Name/No.	Theatre
Item Code No.	4	Item Description	Procedure trolley
1. General Description All stainless steel procedure trolley, tubular frame, robust constructed, with two stainless steel shelves and guard rail on three sides of the top shelve, a waste receptacle, with four castors. ϕ 100 mm, 2 lockable.			
2. Composition			
2.1 Main unit			
3. Performance Specifications			
3.1 Main Unit			
3.1.1 Material All stainless steel			
3.1.2 Top Stainless steel with guard rails			
3.1.3 Shelve 1 No. Stainless steel			
3.1.4 Waste receptacle 1 No. Stainless steel			
3.1.5 Castors Φ 100mm, 2 with brakes, antistatic			
3.1.6 Dimensions Approximately L 700 x W 460 x H 860 mm.			
4 Accessories			
4.1 Nil			
5 Quality standards			
5.1 Manufacturing standards ISO 9001 or any other internationally recognized standards			
5.2 Conformity to standards CE marked or any other internationally recognized documents			

Department	COVID-19	Room Name/No.	N/A
Item Code No.	5	Item Description	Linen Trolley
1. General Description			
Linen trolley constructed from epoxy coated mild steel, with antistatic rubber castors ϕ 100 mm swivel, with removable cloth sack treat with plastic.			
2. Composition			
2.1 Main unit			
3. Physical Specifications			
3.1 Main Unit			
3.1.1	Material of main unit	Epoxy coated mild steel.	
3.1.2	sack	Removable cloth sack treated with plastic (washable and water prove)	
3.1.3	Push handles	Provided	
3.1.6	Dimensions	800 L X 650 W X 850 H (mm)Adjustable, mechanical	
3.1.7	Mobile	With 4 Antistatic 100mm swivel, with brakes	
4 Quality Standards			
4.1	Manufacturing standards	ISO 9001 or any other internationally recognized standards	
4.2	Conformity to standards	CE marked or any other internationally recognized documents	
5 Delivery point			
5.1	Hadado S.H	Delivery point	
6 Warranty			
6.1	Equipment	Minimum of one year after delivery	
6.2	Equipment System	Nil	

Department	COVID -19	Room Name/No.	N/A
Item Code No.	6	Item Description	Patient trolley/Stretchers

1. General Description		
Patient Stretcher with adjustable sides, constructed from chrome plated mild steel and mobile on castors		
2. Composition		
2.1	Main unit	
3. Physical Specifications		
3.1	Main Unit	
3.1.1	Material of main unit	Tubular mild steel, chrome plated
3.1.2	Movements	Back rest, trendelenburg/reverse tendelenburg, up and down
3.1.3	Operation	By hydraulic mechanical system
3.1.4	Side guard rails	Foldable or drop down type
3.1.5	Mattress	High density, water proof and fire resistance
3.1.6	Mobile	On four antistatic castors diameter 150mm with brakes and central locking system
3.1.7	IV pole	Provided
3.1.8	Dimensions (Overall)	2050 mm(L) X 780 mm (W) X 620 -900mm (H)
3.1.9	Weight to handle	180 kg
4 Quality Standards		
4.1	Manufacturing standards	ISO 9001 or any other internationally recognized standards
4.2	Conformity to standards	CE marked or any other internationally recognized documents

Department	7	Room Name/No.		Theatre	
Item Code No.	COVID-19	Item Description		Resuscitation patient trolley	
1. General Description					
Resuscitation patient trolley with IV pole , Oxygen Cylinders and with adjustable sides, constructed from chrome plated mild steel and mobile on castors					
2. Composition					
2.1	Main unit				
3. Physical Specifications					
3.1	Main Unit				
3.1.1	Material of main unit	Tubular mild steel, chrome plated			
3.1.2	Movements	Back rest, trendelenburg/reverse tendelenburg, up and down			

3.1.3	Operation	By hydraulic mechanical system
3.1.4	Side guard rails	Foldable or drop down type
3.1.5	Mattress	High density, water proof and fire resistance
3.1.6	Mobile	On four antistatic castors diameter 150mm with brakes and central locking system
3.1.7	IV pole	Provided
3.1.8	Oxygen cylinder	Provided, Medium size
3.1.9	Resuscitation bags	Provided, adult and paed
3.1.10	Dimensions (Overall)	2050 mm(L) X 780 mm (W) X 620 -900mm (H)
3.1.11	Weight to handle	180 kg
4	Quality Standards	
4.1	Manufacturing standards	ISO 9001 or any other internationally recognized standards
4.2	Conformity to standards	CE marked or any other internationally recognized documents

Item Code No.	8	Item Description	Autoclave, Large, 120 Litres
Department	COVID-19	Room Name/No.	CSSD
1. General Description			
Automatic, microprocessor controlled steam sterilizer suitable for sterilization of hospitals porous and non-porous loads. The autoclave should be horizontal stand-alone type and constructed from double walled high-grade stainless steel materials.			
2. Composition			
2.1 Main unit			
3. Performance Specifications			
3.1 Main Unit			
3.1.1	Application	For sterilization of hospitals porous and non- porous Loads.	
3.1.2	Sterilization agent	Saturated steam with inbuilt steam generator	
3.1.3	Sterilization cycle	Fully automatic with Pre – vacuum, heating (steam pulsating), sterilization (holding), post vacuum (drying). With inbuilt printer capable of printing each successful sterilization cycle	
3.1.4	Sterilization temperature range	105°C to 137°C, selectable programs for different kind of loads	
3.1.5	Pressure equalization	By sterile HEPA filter, replaceable	
3.2	Sterilization chamber design and capacity	Horizontal type, 120 litres, all high grade stainless steel construction	
3.2.1	Sterilization Chamber door	Fully automatic, hydraulic, vertical or horizontal sliding.	
3.3	Control unit	Microprocessor based controlling all operational cycles With large LCD or similar display of cycle progress i.e.	

		temperature, pressures and time. With different programmable cycle programs for different type of loads. With facilities for calibration.
3.4	Steam generator	In built, Electrical heating three phase 415V, 50 Hz
3.5	Water to steam generator	De- carbonated water to safe guard heating element. Suitable RO filter units to be installed
3.6	Printer	In built printer capable of printing each successful cycle. Preferable thermal printer
3.7	Safety features	The autoclave should have major safety features such as: Safety pressure relief valve Door lock under pressure
3.8	Raw water Treatment	Supply and install, RO water filtration system for raw water complete with Pre-filters
3.9	Water re-cycling system	Supply and install a water recycling system. System to be composed of a water reservoir (500 litres), piping system water pump and control unit
4	Physical characteristics	
4.1	Main unit Dimensions	Floor mounted, stand alone About 1.2 x 1.4 x 1.2m (WxHxD)
5	Operating environment	
5.1	Power Requirements Ambient temperature Relative humidity	415V, A/c 50 Hz, Single phase, with PE 10° C to 40° C 40% to 90%
6	Accessories	
	Pull out trays, containers, and baskets.	1 Set
6.1	Loading cart, stainless steel	1 Piece
6.2	Automatic Voltage Regulator (AVR)	For the electronic circuit only
6.2.1	Capacity	Over VA of the electronic circuit
6.2.2	Input	Ac 240V, 50Hz, Single phase ± 15%
6.2.3	Output	Ac 240V, 50Hz, Single Phase ± 2.5 %
7	Spare parts	
7.1	Heaters	2 sets
7.2	Printing papers	10 Rolls
7.3	Door gaskets	2 Sets
7.4	RO filter cartridges,	2 Set
9	Quality standards	
9.2	Manufacturing standards Conformity to	IEC 60601-1, ISO 9001 or any other internationally recognized standards CE marked or any other internationally recognized

standards	documents
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Item Code No.	9	Item Description	Blood gas Analyzer
Department	COVID-19	Room Name/No.	Clinical Chemistry/hematology
A. Performance and safety requirement for the equipment to be placed			
1. General Description Blood gas analyzer, capable of measuring pCO ₂ , pO ₂ , pH, K ⁺ , Na ⁺ , Cl ⁻ , Ca ⁺⁺ and at least 15 calculated parameters in whole blood, serum and plasma. The unit should be automatic, with electronic digital read out, dilutor and in built printer.			
2. Composition			
2.1	Main unit		
3. Performance Specifications			
3.1	Main Unit		
3.1.1	Measuring parameters	pCO ₂ , pO ₂ , pH, K ⁺ , Cl ⁻ , Ca ⁺⁺	
3.1.2	Calculated parameters	At least 15 parameters	
3.1.3	Sample volume	at least 150µl	
3.1.4	Measuring time	about 2-5 seconds	
3.1.5	Temperature correction	Automatic	
3.1.6	Display	Large LCD display	
3.1.7	Printer	In built	
3.1.8	Key pad	Soft	
4	Physical characteristics		
4.1	Main unit	Bench top Robust construction and easy to clean	
5	Operating environment		
5.1	Power Requirements	240V, A/c 50 Hz, Single phase	
	Ambient temperature	10° C to 40° C	
	Relative humidity	40% to 90%	
6	Accessories		
6.1	Automatic Voltage Regulator (AVR)		
6.1.1	Capacity	Over VA of the main Unit	
6.1.2	Input	Ac 240V, 50Hz, Single phase ± 15%	
6.1.3	Output	Ac 240V, 50Hz, Single Phase ± 2.5 %	
7	Quality standards		
7.1	Manufacturing standards	IVD- Directive 98/79/EC (IEC 1010-1), IEC 60601-1, ISO 9001 or any other internationally recognized standards	
	Conformity to standards	CE marked or any other internationally	

recognized documents

B: Reagents and consumable supply

13. Provide list and details of reagents, calibrates and consumables required to conduct approximately 800 tests per month for two years

Item Code No.	10	Item Description	Clinical Chemistry Analyzer with ISE
Department	COVID-19	Room Name/No.	Clinical Chemistry/hematology

A. Performance and safety requirement for the equipment to be placed

Clinical chemistry analyzer with ISE, open system, suitable for a county referral hospital laboratory. It should be capable of measuring the following parameters;

- i) Specific proteins
- ii) Electrolytes
- iii) Enzymes
- iv) Substrates
- v) Drug of abuse

The unit should be automatic, with microprocessor-controlled analyzer, Digital display, and in-built or external printer.

2. Composition

2.1 Main unit

3. Performance Specifications

3.1 Main Unit

- 3.1.1 Test menu At least 120 selections
- 3.1.2 Test per hour Minimum 400 photometric tests.
- 3.1.3 On- board parameters At least 30
- 3.1.4 Analyzer system Random access, Discrete, Automatic, Selectable
STAT sample priority
- 3.1.5 Programming User defined and calculations

- 3.2 **Sample processing**
- 3.2.1 Sample tray capacity 40 to 80 samples
- 3.1.8 Sample Volume 2- 50 µL
- Sample dilution Automatic, Pre and post dilutions
- 3.1.9 Sample identification Bar code reader (variety of bar code systems)
- Sample probe Probe crash protection, Liquid level Detection and clot

3.1.10	Probe cleaning	detection Internal and External
3.2	Reagent processing	
3.2.1	Reagent tray Capacity	about 50
3.2.2	Reagent storage	Refrigerated compartment
3.2.3	Reagent probe	Probe crash protection, Liquid level Detection
3.2.4	Probe cleaning:	Internal and External
3.3	ISE Module	
3.3.1	Tests	Sodium, Potassium, chloride and lithium
3.4	Optical Characteristics	
3.4.1	Light source	Halogen- Tungsten lamp, easily replaceable
3.4.2	Wavelength	340- 670 nm (approximately)
3.4.3	Sensitivity	About 0.0001 OD
3.5	Data Processor	
3.5.1	Operating system	Compatible with Windows 8
3.5.2	Interface	RS-232, USB, Ethernet Port
3.5.3	Memory	> 10GB
3.5.4	Data input	key pads, soft touch
3.5.5	Display	Digital display.
3.5.6	Printer	In built with provision of external printer
3.5.7	Control and Calibration	Automatic, can be adjusted through the software
3.5.8	Parameters	Display of running status, alerts,
3.5.9		Diagnosis of working status.
3.5.10		Software should be upgradeable
4	Physical characteristics	
4.1	Main unit	Bench top Robust construction and easy to clean
5	Operating environment	
5.1	Power Requirements	240V, A/c 50 Hz, Single phase
5.2	Ambient temperature	10° C to 40° C
5.3	Relative humidity	40% to 90%
6	Accessories	
6.1	Automatic Voltage Regulator (AVR)	
6.1.1	Capacity	Over VA of the main Unit
6.1.2	Input	Ac 240V, 50Hz, Single phase \pm 15%
6.1.3	Output	Ac 240V, 50Hz, Single Phase \pm 2.5 %
7	Quality standards	

7.2	Manufacturing standards	IEC 60601-1, ISO 9001 or any other internationally recognized standards
7.3	Conformity to standards	CE marked or any other internationally recognized documents
8	Delivery point	
8.1	See Schedule	For inspection
9	Installation and testing	Complete installation and set-up of the machine at designated hospital as per manufacturer's instructions
9	Technical documentations	
9.1	User manuals	2 Sets
9.2	Service Manual	2 Set
9.3	Drawings	Nil
10	Commissioning	Testing and commissioning of the machine to the satisfaction of the user.
11	Warranty	
11	Equipment	Minimum of one year after commissioning on all parts.
11	Equipment System	Nil
B: Reagents and consumable supply		
12. Provide list and details of reagents, calibrates and consumables required to conduct approximately 12,000 tests per month for ten years		

Item Code No.	11	Item Description	Glucometer
Department	COVID-19	Room Name/No.	Clinical Chemistry/hematology
A. Performance and safety requirement for the equipment to be placed			
1. General Description			
Glucometer			
2. Composition			
2.1 Main unit			
3. Performance Specifications			
3.1	Main Unit	Unit on current production	
3.1.1	Type	Hand held	
3.1.2	Measurement Time	About 5 seconds	
3.1.3	Measurement range	20-600 mg/dl	
3.1.4	Hamatocrit range	35-55%	
3.1.5	Blood sample	About 0.5 micro litre	
3.1.6	Power	Inbuilt lithium battery or equivalent	
3.1.7	Display	Digital LED	

4	Physical characteristics	
4.1	Main unit	Hand held Robust construction and easy to clean
5	Operating environment	
5.1	Power Requirements	
5.2	Internal batteries	Lithium or equivalent
5.3	Ambient temperature	10° C to 40° C
5.4	Relative humidity	40% to 90%
6	Accessories	
6.1	Nil	
7	Spare parts	
7.1	Nil	
8	Consumables/Reagents	
8.1	Nil	
9	Quality standards	
9.2	Manufacturing standards	IEC 60601-1, ISO 9001 or any other internationally recognized standards
9.3	Conformity to standards	CE marked or any other internationally recognized documents
10	Delivery point	
10.1	See Schedule	For inspection
11	Warranty	
11.1	Equipment	Minimum of one year after commissioning on all parts.
11.2	Equipment System	Nil
B: Reagents and consumable supply		
12. Provide list and details of stripes, calibrates and other required consumables to conduct approximately 4000 tests per month for 10 years		

Item Code No.	12	Item Description	Hematology Analyzer
Department	COVID-19	Room Name/No.	Clinical Chemistry/hematology
1. General Description			
Hematology analyzer, capable of measuring RBC, WBC, HCT, MCV, MCH, MCHC, PLT and histogram and at least 10 other parameters and 5 differential. The unit should be automatic, with electronic digital read out, dilutor and in built printer.			
2. Composition			
2.1 Main unit			
3. Performance Specifications			
3.1 Main Unit			

3.1.1	Measuring parameters	RBC, WBC, HCT, MCV, MCH, MCHC, PLT and at least 10 more, histogram for at least WBC, RBC, and PLT
3.1.2	Accuracy	RBC $\pm 2\%$, WBC $\pm 3\%$, Hct $\pm 2\%$
3.1.3	Differential	At least 5
3.1.4	Tests per hour	60 or more
3.1.5	Capillary diameter	at least 100 μ m
3.1.6	Sample volume	at most 20 μ l
3.1.7	Measuring time	about 14 seconds
3.1.8	Temperature correction	Automatic
3.1.9	Display	Large LCD display
3.1.10	Printer	In built, thermal type
3.1.11	QC	Provided, internal
4	Physical characteristics	
4.1	Main unit	Table Top Model
5	Operating environment	
5.1	Power Requirements	240V, A/c 50 Hz, Single phase
	Ambient temperature	10 $^{\circ}$ C to 40 $^{\circ}$ C
	Relative humidity	40% to 90%
6	Accessories	
6.1	Automatic Voltage Regulator (AVR)	
6.1.1	Capacity	Over VA of the main Unit
6.1.2	Input	Ac 240V, 50Hz, Single phase $\pm 15\%$
6.1.3	Output	Ac 240V, 50Hz, Single Phase $\pm 2.5\%$
7	Quality standards	
7.1	Manufacturing standards	IVD- Directive 98/79/EC (IEC 1010-1), IEC 60601-1, ISO 9001 or any other internationally recognized standards
	Conformity to standards	CE marked or any other internationally recognized documents
8	Delivery point	
8.1	See Schedule	For inspection, installation and commissioning
9	Installation and testing	Complete installation and set up of the machine as per manufacturer's instructions
10	Technical documentations	
10.1	User manuals	2 Sets
10.2	Service Manual	1 Set
10.3	Drawings	Nil
11	Commissioning	
11.1	Testing and commissioning of the machine to the satisfaction of the user.	
12	Warranty	
12.1	Equipment	Minimum of one year after commissioning on all parts.

12.2	Equipment System	Nil
B: Reagents and consumable supply		
13. Provide list and details of reagents, calibrators, controls and any other required consumables to conduct approximately 9000 tests per month for 10 years		

Department	COVID-19	Room Name/No.	ICU
Item Code No.	13	Item Description	Refrigerator, Drug
1. General Description Refrigerator, drug.			
2. Composition			
2.1 Main unit			
3. Performance Specifications			
3.1 Main Unit			
3.1.1	Material	Insulated galvanized steel	
3.1.2	Type	Compressor, electrical	
3.1.3	Door	Single door , glass type	
3.1.4	Total net capacity	350 litres	
3.1.5	Temperatures range	+2°C to + 8°C stable	
3.1.6	Ambient temperature	10 ° Cto 35°C	
3.1.7	Shelves	Provided, adjustable and extractable	
3.1.8	Thermometer	Digital, external mounted, with temperature record history	
3.1.9	Control	Electronic, Microprocessor based	
3.1.10	Refrigerant	CFC free	
3.1.11	Alarm	Provided, audible and visible	
3.1.12	Dimensions	Approximately D630x W 600x 2000 H (mm)	
3.1.13	Power	240V, 50 Hz, a.c	
4 Accessories			
4.1 Nil			
5 Quality standards			
5.1	Manufacturing standards	ISO 9001	
5.2	Conformity to standards	CE marked or any other internationally recognized documents	

Department	COVID-19	Room Name/No.	Renal
Item Code No.	14	Item Description	Dialysis machine
1. General Description			
Dialysis machine capable of providing hemodialysis, hemodiafiltration and hemofiltration services. The unit should be constructed from material easy to disinfect and should be mobile on castors and with back up internal batteries.			
2. Composition			
2.1 Main unit			
3. Performance Specifications			
3.1	Main Unit Performance Capacity	Model on current production Hemodialysis, hemodiafiltration and hemofiltration At least 10 patients per day	
3.1.1	Dialysis dose delivery Dialysis fluid preparation and monitoring	Provided, automatic and provision for adjustment by user Provided	
3.1.2	Dialysate fluid flow Arterial blood line clamp Air detection Blood Flow control Blood circulation pressure Heparin syringe pump Blood leakage detection Cleaning and disinfection Ultrafiltration Inlet water pressure Display	Provided, adjustable Provided Provided Provided, adjustable Provided, adjustable Provided, adjustable Provided Provided 1 to 7 bars LCD display of measured parameters, with touch screen menu and keys	
	Back up batteries	Provided	
4	Physical characteristics		
4.1	Main unit	Mobile on castors, Robust and compact construction and easy to clean	
	Approximate size	W600 X D 650 X H 1400	
5	Operating environment		
5.1	Power Requirements Internal back up batteries	240V, A/c 50 Hz, Single phase Provided, rechargeable type	

5.2	Ambient temperature	10° C to 40° C
5.3	Relative humidity	40% to 90%
6	Spare parts	
6.1	Heating Element	2 sets
7	Consumables	
7.1	Provide Ultrafilters, Dialyzers, Concentrates, Bloodlines and cartridges for start up for at least 20 patient use	
8	Quality standards	
8.1	Manufacturing standards	EN 1060-1, IEC 60601-1, ISO 9001 or any other internationally recognized standards
8.2	Conformity to standards	CE marked or any other internationally recognized documents

Department	COVID-19	Room Name/No.	Renal
Item Code No.	15	Item Description	Dialysis Bed
1. General Description			
Dialysis bed complete with adjustable backrest, knee rest, trendelenberg/ reverse trendelenberg, and water proof mattress, Electrical type			
2. Composition			
2.1 Main unit			
3. Physical Specifications			
3.1	Main Unit		
3.1.1	Type	Electrical Dialysis bed with back up batteries	
3.1.2	Material of main unit	Mild steel epoxy coated, antistatic	
3.1.3	Movement	Backrest, Knee rest, trendelenberg, reverse trendelenberg, fowler and vascular position, cardiac chair position, and shock position, all electric operated	
3.1.4	Height	Adjustable, electric operated	
3.1.5	Back rest	Retracting, X-Ray translucent and cassette carrier	
3.1.6	Leg section	Retracting	
3.1.7	Head rest/ knee rest	Removable	
3.1.8	Side rails	Drop down type	
3.1.9	Mattress	Provided, high density covered with leather imitation material or Vitapruf	
3.1.10	IV pole	Provided, stainless steel and adjustable	
3.1.11	Castors	Four antistatic castors Ø 150 mm with central locking position and bidirectional locks	
3.1.12	Control	Microprocessor based, with patient hand held control, and Nurse control panel Programmable positions buttons for ease of adjusting	

3.1.13	Power	patient positions 240 V, 50Hz single phase with back up sealed battery
3.1.14	Overall Dimensions (mm)	2100 L X 980 W X 380- 800H
3.1.15	Weight to handle	200 kg
4	Quality Standards	
4.1	Manufacturing standards	ISO 9001 and 60601 or any other internationally recognized standards
4.2	Conformity to standards	CE marked or any other internationally recognized documents, IP X4 electrical protection standard
5	Delivery point	
5.1	See Schedule	Delivery point
6	Warranty	
6.1	Equipment	Minimum of one year after delivery
6.2	Equipment System	Nil

Department	COVID-19	Room Name/No.	Renal
Item Code No.	16	Item Description	Water treatment unit
1. General Description			
Water treatment unit, consisting of Pre-filters, carbon filters, softeners, RO system, reservoir tank piping and circulation system			
2. Composition			
2.1 Main unit			
3. Performance Specifications			
3.1.2	Capacity	Minimum 30 litres per hour at 2 bars	
3.1.3	Pre treatment	Provided, Coarse filter type, replaceable	
3.1.4	Activated Carbon filters	Provided, replaceable	
3.1.5	Water Softener (Ion Exchange Unit)	Provided	
3.1.6	Fine filters	Provided, 20 Microns	
3.1.7	Micro filter	Provided, Replaceable type	
3.1.8	Reverse Osmosis	Provided, Replaceable Membrane type with pump,	
3.1.9	UV treatment	Provided, with replaceable lamps	
3.1.10	Pure water quality	To comply with ISO 13959	
3.1.11	Conductivity	Maximum 5µs/cm	
3.1.12	Ionic Rejection	Minimum 95%	
3.1.7	Bacterial and particles rejection	Minimum 99%	

3.1.9	Display	LCD display of conductivity and resistivity
3.2	Monitoring and Safety devices	Audio and Visual Alarm on water quality, water level, system failure, system shut down
3.1	Clean water Reservoir tanks/ heat disinfection unit	Provided, 100 litres plastic
	Circulation pump	Provided, from reservoir tank to back at 2 bars, Radial type
3.1.1	Piping work	Provided, high grade pipes with terminals for each dialysis machine (3 No. to be upgraded later), Radial system
3.1.3	Drainage piping	Provided
4	Operating environment	
4.1	Power Requirements	240V, A/c 50 Hz, Single phase
4.2	Ambient temperature	10° C to 40° C
4.3	Relative humidity	40% to 90%
5	Installation and Commissioning	
5.1	Installation, testing and commissioning of the system to the satisfaction of the user.	

Department	COVID-19	Room Name/No.	Renal
Item Code No.	17	Item Description	Defibrillator
1. General Description			
Defibrillator suitable for cardiac care complete with ECG monitoring, SPO ₂ monitoring and NIBP			
2. Composition			
2.1 Main unit			
3. Performance Specifications			
3.1 Main Unit			
3.1 Defibrillator			
3.1.1	Design	Compact design, portable and rugged	
3.1.2	Type	Manual and Automatic External defibrillation (AED) modes	
3.1.3	Technology	Biphasic waveform Non invasive pacing	
3.1.4	Maximum Energy Level	200J	
3.1.5	Charging time	Less than 5 Seconds to Maximum energy level	
3.1.6	Defibrillator paddle		
	Adult, reusable	1 Unit,	
	Pediatric, reusable	1 Unit	

3.2	ECG monitoring	
3.2.1	Lead	12 lead configuration
3.2.2	Heart Rate	15 to 300 bpm accuracy \pm 10%
3.2.2	ECG cable	1 No.
3.3	SPO ₂	
3.3.1	Measurement range	0 to 100%
	Accuracy	\pm 1%
	Heart Rate	15 to 300 bpm accuracy \pm 5%
	SPO ₂ Sensors	
	Adult	2 No. Reusable
	Pediatric	2 No. Reusable
	Neonatal	2 No. Reusable
3.4.	Display	TFT colour LCD screen 5.5” or more
3.4.1	Resolution	320 x240 pixels
3.5	Alarm function	Audible and Visual
3.5.1	Safety	Self check: audible and visual alarm
3.5.2	Lead fault	Audible and visual alarm
3.5.3	Paddle fault	Audible and visual alarm
3.5.4	ECG cable fault	Audible and visual alarm
3.5.5	Heart rate alarms	Audible and visual alarm
3.6	Recorder	Inbuilt
3.6.1	Paper Speed	25mm/sec approximately
3.7	Storage	SD memory card
4	Physical characteristics	
4.1	Main unit	Portable
4.2	Dimensions	
5	Operating environment	
5.1	Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug (BS), 3m long cord with PE
5.2	Back up supply	Internal rechargeable batteries (SLA), to last at least five hours
5.3	Ambient temperature	10° C to 40° C
5.4	Relative humidity	40% to 90%
6	Spare parts/ Consumables	
6.1	ECG electrode	1 Unit
6.2	Gel	3 boxes
6.3	Recording paper	10 Rolls
7	Quality standards	
7.1	Manufacturing standards	IEC 60601-1, ISO 9001 or any other internationally recognized standards
7.2	Conformity to standards	CE marked or any other internationally recognized documents

8	Local back up service	
8.1	Available	Should be available locally
8.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, and qualified and skilled technical staff
9	Delivery point	
9.1	See Schedule	For inspection and testing
9.2	Nil	
10	Pre installation requirements	
	Nil	
11	Installation and testing	
	Complete installation and set up of the machine as per manufacturer's instructions	
12	Training	
12.1	User Training	On site user training on operation and daily up keep
12.2	Maintenance training	On-site maintenance training on preventive maintenance
13	Technical documentations	
13.1	User manuals	2 Sets
13.2	Service Manual	2 Set
13.3	Drawings	Nil
14	Commissioning	
14.1	Testing and commissioning of the machine to the satisfaction of the user.	
15	Warranty	
15.1	Equipment	Minimum of one year after commissioning on all parts.
15.2	Equipment System	Nil

Department	COVID-19	Room Name/No.	Renal
Item Code No.	18	Item Description	Suction Machine
1. General Description			
Suction machine suitable for use in theatre, for both adult and pediatric use.			
Should be constructed from coated non-corrosive, extreme heat resistance material and electrically insulated and mobile on antistatic castors ϕ 60 mm, 2 No. lockable, with high level push handle.			
2. Composition			
2.1 Main unit			
3. Performance Specifications			
3.1 Main Unit			
3.1.1 High flow rate		40 litres per minute.	
3.1.2 Suction vacuum		Maximum 700mmHg	
3.1.3 Suction pump		Rotary aspiration- oil free	
3.1.4 Jars		2 X 2 litre polycarbonate autoclavable and unbreakable complete with overflow devices and valves.	

3.1.5	Vacuum gauge	Graduated in mmHg and kPa.
3.1.6	Vacuum control	Adjustable at the front panel
3.1.7	Switch	Main on front panel and foot switch (water proof type)
3.1.8	Cable towage	On back with reversible cleats
3.1.9	Anti-bacterial filters	Available preferable autoclavable
3.1.10	Suction tubing connection	Antistatic neoprene or silicone
3.1.11	Safety	Overflow pump protection
3.1.12	Handle	High level push handle type
3.1.13	Movements	Mobile on four antistatic castors ϕ 60 mm, 2 No. lockable.
4	Physical characteristics	
4.1	Main unit	Mobile on castors with push handle
4.2	Dimensions	About 34 X 34 X30 cm
5	Operating environment	
5.1	Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug BS standard, 3m long cord with PE
5.2	Ambient temperature	10° C to 40° C
5.3	Relative humidity	40% to 90%
6	Accessories	
6.1	Sterilizable, silicone tubing	5 Set
6.2	Bacterial filters	1 Box
6.3	Foot switch	1 No.
6.4	Cannula with handle for general purpose	4 Sets
7	Spare parts	
	Bacterial filters	2 Sets
9	Quality standards	
9.2	Manufacturing standards	EN 10079-1, IEC 60601-1, ISO 9001 or any other internationally recognized standards
	Conformity to standards	CE marked or any other internationally recognized documents

Department	COVID-19	Room Name/No.	ICU
Item Code No.	19	Item Description	ICU Bed with mattresses
1. General Description			
Electrical and Manual operated ICU bed complete with adjustable backrest, knee rest, trendelenberg/ reverse trendelenberg, and water proof mattress			
2. Composition			
2.1 Main unit			
3. Physical Specifications			
3.1 Main Unit			
3.1.1	Type	Electrical and Manual ICU bed with back up batteries	
3.1.2	Material of main unit	Mild steel epoxy coated, antistatic	
3.1.3	Movement	Backrest, Knee rest, trendelenberg, reverse trendelenberg, fowler and vascular position, cardiac chair position, and shock position, all electric operated	
3.1.4	Height	Adjustable, electric operated	
3.1.5	Back rest	Retracting, X-Ray translucent and cassette carrier	
3.1.6	Leg section	Retracting	
3.1.7	Head rest/ knee rest	Removable	
3.1.8	Side rails	Drop down type	
3.1.9	Mattress	Provided, high density covered with leather imitation material or Vitapruf	
3.1.10	IV pole	Provided, stainless steel and adjustable	
3.1.11	Castors	Four antistatic castors Ø 150 mm with central locking position and bidirectional locks	
3.1.12	Control	Microprocessor based, with patient hand held control, and Nurse control panel Programmable positions buttons for ease of adjusting patient positions	
3.1.13	Power	240 V, 50Hz single phase with back up sealed battery	
3.1.14	Overall Dimensions (mm)	2100 L X 980 W X 380- 800H	
3.1.15	Weight to handle	200 kg	
4 Quality Standards			
4.1	Manufacturing standards	ISO 9001 and 60601 or any other internationally recognized standards	
4.2	Conformity to standards	CE marked or any other internationally recognized documents, IP X4 electrical protection standard	
5 Delivery point			
5.1	See Schedule	Delivery point	
6 Warranty			
6.1	Equipment	Minimum of one year after delivery	
6.2	Equipment System	Nil	

Department	COVID-19	Room Name/No.	ICU																																				
Item Code No.	20	Item Description	Central Monitoring Unit																																				
<p>1. General Description</p> <p>Central monitoring unit complete with six bedside monitors for ICU. Should be capable of monitoring the following parameters in adults, neonatal and pediatric.at both bedside and centrally,</p> <ul style="list-style-type: none"> • SpO₂ • Temperature • Blood pressure • ECG • Respiration • CO₂ • Pulse Rate 																																							
<p>2. Composition</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">2.1</td> <td style="width: 75%;">Central workstation with CPU and software</td> <td style="width: 20%;">1 pc</td> </tr> <tr> <td>2.2</td> <td>Bedside monitor with docking station</td> <td>6 pcs</td> </tr> <tr> <td>2.3</td> <td>Printer</td> <td>1 pc</td> </tr> <tr> <td>2.4</td> <td>AVR</td> <td>1pc</td> </tr> </table>				2.1	Central workstation with CPU and software	1 pc	2.2	Bedside monitor with docking station	6 pcs	2.3	Printer	1 pc	2.4	AVR	1pc																								
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<p>3. Performance Specifications</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">3.1</td> <td style="width: 75%;">Central work station</td> <td></td> </tr> <tr> <td>3.1.1</td> <td colspan="2">The unit should be a model or type on current production composed of a CPU and display screen. Medical grade products</td> </tr> <tr> <td>3.1.2</td> <td colspan="2">Display Screen</td> </tr> <tr> <td>3.1.2.1</td> <td>Size</td> <td>Minimum 21” touch screen</td> </tr> <tr> <td>3.1.2.2</td> <td>Type</td> <td>LCD, colour, with navigation rotary knob</td> </tr> <tr> <td>3.1.2.3</td> <td>Parameters</td> <td>Capable of displaying all vital sign in graphic waveform and parameters emanating from the four remote bed side monitors,</td> </tr> <tr> <td>3.1.2.4</td> <td>Real time</td> <td>Displays real time vital sign parameters</td> </tr> <tr> <td>3.1.2.5</td> <td>Alarm limit</td> <td>Can be set on the screen</td> </tr> <tr> <td>3.1.3</td> <td colspan="2">CPU</td> </tr> <tr> <td>3.1.3.1</td> <td>Size</td> <td>Minimum 500GB</td> </tr> <tr> <td>3.1.3.2</td> <td>Performance</td> <td>Complete with hardware and window based software for networking and displaying vital sign from all the six monitors to the central monitor, by both wireless and wired technology</td> </tr> <tr> <td>3.1.4</td> <td>Software</td> <td>Pre-installed in the CPU</td> </tr> </table>				3.1	Central work station		3.1.1	The unit should be a model or type on current production composed of a CPU and display screen. Medical grade products		3.1.2	Display Screen		3.1.2.1	Size	Minimum 21” touch screen	3.1.2.2	Type	LCD, colour, with navigation rotary knob	3.1.2.3	Parameters	Capable of displaying all vital sign in graphic waveform and parameters emanating from the four remote bed side monitors,	3.1.2.4	Real time	Displays real time vital sign parameters	3.1.2.5	Alarm limit	Can be set on the screen	3.1.3	CPU		3.1.3.1	Size	Minimum 500GB	3.1.3.2	Performance	Complete with hardware and window based software for networking and displaying vital sign from all the six monitors to the central monitor, by both wireless and wired technology	3.1.4	Software	Pre-installed in the CPU
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	Capable of analysis and displaying waveform and parameters from all the monitors connected Capable of monitoring bedside monitors parameters through wired and wireless technology Capable of displaying MRI, CT,, and X-Ray images in DICOM format DICOM compatible, Can also access internet
3.2 Bed side monitors (6 No.)	
3.2.1 Type	Portable type, complete a recharging dock,
3.2.2 Application	Can be used as a both bedside monitor and a transport monitor
3.2.3 Mounting	Mounted on a mobile stand with castors. Can also be mounted on the ICU bed
3.2.4 Parameter & waveforms	SpO ₂ , Pulse rate, ECG, NIBP, IBP, Respiration, CO ₂ and temperature
3.2.5 SpO ₂ , with reusable sensor	0 - 100% ± 3%
3.2.6 Pulse Rate	30-300 bpm ± 1%
3.2.7 Temperature	0-50 ⁰ C ± 0.1%
3.2.8 NIBP	Mean 10- 300mmHg ± 5 mmHg
3.2.9 IBP	Mean 50 – 300mm Hg ± 1 mmHg
3.2.10 ECG	3 lead, standard configuration
3.2.11 Respiration	0 to 15o breaths/min ± 2 breaths/ min
3.2.12 CO ₂	0 to 99 mmHg ± 4 mmHg , Mainstream method
3.2.13 Display	10.4 to12.1 inches color TFT colour LCD, preferable touch screen type
3.2.14 Resolution about	800X 600
3.2.15	6 to 8 waveforms mode with large font
3.2.16 Networking	Wireless and wired connection to the central work station
3.2.17 Storage	Capable of storing patient data and transferring to the central workstation for viewing or printing.
3.2.18 Audio and visual alarm	For all parameter.
3.2.19 Alarm setting limits	Adjustable by user
3.2.19 Low battery indicator	Audio and visual alarm
3.2.20 Power Requirement	Rechargeable internal battery, can lat at least 3 hours when fully charged
3.3 Docking system	To be provided for recharging the bedside monitor and enabling wireless and wired communication to the central workstation
3.4 Wireless networking	Encrypted WPA2 technology or newer version

5	Physical characteristics	
5.1	Main unit	
5.2	Central workstation	To be installed in the Nursing station
5.3	Bed side monitors	To be mounted on mobile stand with castors. Should be capable of rotating.
5.4	Docking system Printer	To be mounted on a convenient stationary place Central printer, Thermal type, to print when necessary
6	Operating environment	
6.1	Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug, 3m long cord BS type with PE
6.2	Internal rechargeable battery	Maintenance free type, Up to 8 hours operating time
6.3	Ambient temperature	10° C to 40° C
6.4	Relative humidity	40% to 90%
6.1	Automatic Voltage Regulator (AVR)	
6.1.1	Capacity	Over VA of the main Unit
6.1.2	Input	Ac 240V, 50Hz, Single phase \pm 15%
6.1.3	Output	Ac 240V, 50Hz, Single Phase \pm 2.5 %
7	Accessories	
7.1	ECG connection lead and reusable electrodes	2 Set
7.2	SpO ₂ connection cable and sensor (finger probe), reusable	2 Sets
7.3	Adult cuff	3 Sets
7.4	Peadiatric cuff	2 Sets
	Temperature connection cable and probe (reusable)	2 Sets
7.5	Recording paper	20 Boxes
7.6	Thermal head cleaner pen	1 No.
7.7	Grounding lead	1 No.
7.8	Automatic Voltage Regulator (AVR)	1 Unit
7.8.1	Capacity	Over VA of the main Unit
7.8.2	Input	Ac 240V, 50Hz, Single phase \pm 15%
7.8.3	Output	Ac 240V, 50Hz, Single Phase \pm 2.5 %
8	Consumable	
8.1	Manufacturers' recommended consumable for start up	300pcs

	(CO2, IBP, SpO2, Temperature probe, Respiration pick up electrodes)	
8	Spare parts	
8.1	Fuses	1 Set
8.2	Battery pack	1 Set
9	Quality standards	
9.1	Manufacturing standards	IEC 60601-1, ISO 9001 or any other internationally recognized standards
9.2	Conformity to standards	CE marked/ FDA approved or any other internationally recognized documents

Department	COVID-19	Room Name/No.	ICU
Item Code No.	21	Item Description	Bedside monitor
<p>1. General Description</p> <p>Portable Bedside monitor suitable for use in ICU. Should be capable of continuous measuring/ monitoring of the following parameters in adults, neonatal and pediatric.</p> <ul style="list-style-type: none"> • SpO₂ • Temperature • Blood pressure • ECG • Respiration • CO₂ • Pulse Rate 			
<p>2. Composition</p> <p>2.1 Main unit</p>			
<p>3. Performance Specifications</p> <p>3.1 Main Unit</p> <p>3.1.1 The unit should be a model or type on current production capable of measuring/monitoring the following parameters</p> <p>3.1.2 SpO₂, with reusable sensor 0 - 100% ± 3%</p> <p>3.1.3 Pulse Rate 30-300 bpm ± 1%</p> <p>3.1.4 Temperature 0-50⁰C ± 0.1%</p> <p>3.1.5 NIBP Mean 10- 300mmHg ± 5 mmHg</p> <p>IBP Mean 50 – 300mm Hg ± 1 mmHg</p> <p>3.1.5 ECG 5 lead, configuration</p> <p>Respiration 0 to 150 breaths/min ± 2 breaths/ min</p> <p>CO₂ 0 to 99 mmHg ± 4 mmHg , Mainstream method</p> <p>3.2 Display 10.4 to12.1 inches color TFT colour LCD, preferable touch screen type</p>			

3.2.1	Resolution about	800X 600
3.2.2		6 to 8 waveforms mode with large font
3.4	Recorder	Inbuilt, thermal array or equivalent
3.4.1		Two speed, selectable
3.4.2		Port for external printer
3.5	Networking	Port for networking with Ethernet or equivalent Or Serial Port RS 232
3.6	Input	In built with provision for connection of external Keyboard.
3.7	Storage	Capable of storing patient data and transferring to a PC for viewing or printing.
4	Safety requirements	
4.1	Audio and visual alarm	For all parameter.
4.2	Alarm setting limits	Adjustable by user
4.3	Low battery indicator	Audio and visual alarm
5	Internal battery	Provided, rechargeable, can operate for at least 3 hours
5	Physical characteristics	
5.1	Main unit	
5.2	Dimensions	Portable with a recharge dock or equivalent recharging unit
6	Operating environment	
6.1	Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug, 3m long cord BS type with PE
6.2	Internal rechargeable battery	Maintenance free type, Up to 8 hours operating time
6.3	Ambient temperature	10° C to 40° C
6.4	Relative humidity	40% to 90%
7	Accessories	
7.1	ECG connection lead and reusable electrodes	2 Set
7.2	SpO ₂ connection cable and sensor (finger probe), reusable	2 Sets
7.3	Adult cuff	3 Sets
7.4	Peadiatric cuff	2 Sets
	Temperature connection cable and probe (reusable)	2 Sets
7.5	Recording paper	20 Boxes
7.6	Thermal head cleaner pen	1 No.
7.7	Grounding lead	1 No.
8	Consumable	

8.1	Manufacturers' recommended consumable for start up (CO2, IBP, SpO2, Temperature probe, Respiration pick up electrodes)	30 pcs
8	Spare parts	
8.1	Fuses	1 Set
8.2	Battery pack	1 Set
9	Quality standards	
9.1	Manufacturing standards	IEC 60601-1, ISO 9001 or any other internationally recognized standards
9.2	Conformity to standards	CE marked/ FDA approved or any other internationally recognized documents

Department	COVID -19	Room Name/No.	ICU
Item Code No.	22	Item Description	Infusion pump
1. General Description Syringe pump			
2. Composition 2.1 Main unit			
3. Performance Specifications 3.1 Main Unit			
3.1.1	Type	Two syringe	
3.1.2	Syringe size	0.5 µl to 140 ml	
3.1.3	Accuracy	± 0.5%	
3.1.4	Flow rate	Adjustable by user	
3.1.5	Control	Volume and time, selectable	
3.1.6	Display	LCD with backlight	
3.1.7	Stand	To be provided	
3.1.8	Extra Syringe	20 pcs	
4 Physical characteristics			
4.1 Main unit			
4.2	Dimensions	Portable on mobile stand	
5 Operating environment			
5.1	Power Requirements	240V, A/c 50 Hz, Single phase	
5.2	Ambient temperature	10° C to 40° C	
5.3	Relative humidity	40% to 90%	
6 Quality standards			
6.1	Manufacturing standards	IEC 60601-1, ISO 9001 or any other internationally recognized standards	

Conformity to standards	CE marked or any other internationally recognized documents
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Department	COVID-19	Room Name/No.	ICU
Item Code No.	23	Item Description	Syringe pump
1. General Description Syringe pump			
2. Composition 2.1 Main unit			
3. Performance Specifications 3.1 Main Unit			
3.1.1	Type	Two syringe	
3.1.2	Syringe size	0.5 µl to 140 ml	
3.1.3	Accuracy	± 0.5%	
3.1.4	Flow rate	Adjustable by user	
3.1.5	Control	Volume and time, selectable	
3.1.6	Display	LCD with backlight	
3.1.7	Stand	To be provided	
3.1.8	Extra Syringe	20 pcs	
4 Physical characteristics			
4.1 Main unit			
4.2	Dimensions	Portable on mobile stand	
5 Operating environment			
5.1	Power Requirements	240V, A/c 50 Hz, Single phase	
5.2	Ambient temperature	10° C to 40° C	
5.3	Relative humidity	40% to 90%	
6 Quality standards			
6.1	Manufacturing standards	IEC 60601-1, ISO 9001 or any other internationally recognized standards	
	Conformity to standards	CE marked or any other internationally recognized documents	

Item Code No.	24	Item Description	Resuscitation, transport trolley
Department	COVID -19	Room Name/No.	ICU
1. General Description Resuscitation trolley			

2. Composition		
2.1	Main unit, mobile type, with two oxygen cylinder	
2.2	Oxygen cylinder	
2.3	Demand valve	
2.4	Oxygen flow meter with humidifier	
3. Performance Specifications		
3.1	Main Unit	Mobile type with two oxygen cylinders
3.1.1	Function	Resuscitation, Aspiration, and Oxygen inhalation
3.1.2	Oxygen regulator	BS type
3.1.3	Castors	Provided, heavy duty, Ø 100mm, with brakes
3.1.4	Accessories	
3.1.4.1	Aspirator with catheter	1 set to be provided
3.1.4.2	Oxygen face mask with tubing	Adults 3 pcs, Pead 3 pcs, Neonates, 3 pcs
3.1.4.3	Air way	3 types to be provided
3.2	Oxygen Cylinder	500 l, 2 pieces, BS type
3.3	Demand valve for adults and infant	Combined type for both adult and infant
3.4	Oxygen flow meter and humidifier	To be provided
4 Quality standards		
4.1	Manufacturing standards	ISO 13485 or any other internationally recognized standards
	Conformity to standards	CE marked or any other internationally recognized documents
5 Delivery point		
5.1	See Schedule	For inspection, installation and testing
5.2	Nil	

Department	COVID-19	Room Name/No.	ICU
Item Code No.	25	Item Description	Pulse Oximeter, Portable

1. General Description		
Portable Pulse Oximeter for use in operating theaters. Should be capable of continuous measuring/ monitoring of SpO ₂ and pulse rate in adults, neonatal and pediatric.		
2. Composition		
2.1 Main unit		
3. Performance Specifications		
3.1	Main Unit	Portable type
3.1.1	The unit should be a model or type on current production and capable of measuring/monitoring SpO ₂ and pulse rate	
3.1.2	SpO ₂ ,	0 - 100%
3.1.3	Accuracy	70-80% ± 3 digits, 80- 100%± 2 digits
3.1.4	Pulse Rate	30-300 bpm ±
3.1.5	Accuracy	± 1 pulse per minute
3.1.5	Alarm	High and low limit of SpO ₂ and Pulse rate
3.1.6	Battery	Built in rechargeable battery about 4 hours operation
4 Operating environment		
4.1	Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug, 3m long cord BS type with PE
5 Accessories		
5.1	Reusable probe for adult	2 pcs
5.2	Reusable probe for Peadiatric	2 pcs
5.3	Reusable probe for neonate	2 pcs
6 Quality standards		
6.1	Manufacturing standards	IEC 60601-1, ISO 9001 or any other internationally recognized standards
6.2	Conformity to standards	CE marked/ FDA approved or any other internationally recognized documents

Item Code No.	26	Item Description	Bedside cabinet trolley
Department	COVID -19	Room Name/No.	ICU
1. General Description			
Hospital Bedside Cabinet trolley locker, with drawer, cabinet and hidden pull out tray. Construct from robust plastic (ABS) on four castors φ 30mm, lockable.			
2. Composition			
2.1 Main unit			
3. Physical Specifications			
3.1 Main Unit			

3.1.1	Top	Plastic robust (ABS)
3.1.2	Drawer	1 No.
3.1.3	Cabinet	1 No.
3.1.4	Tray	1 No. Pull out type
3.1.5	Towel Holder	2 No. provided on the sides
3.1.6	Castors	3” castors with brakes
3.1.7	Dimensions	480 (W) X 470 (L) X 750 (H) mm
4	Quality Standards	
4.1	Manufacturing standards	ISO 9001 or any other internationally recognized standards
4.2	Conformity to standards	CE marked or any other internationally recognized documents

Department	COVID-19	Room Name/No.	ICU
Item Code No.	27	Item Description	Laryngoscope with blade, adult
1. General Description Laryngoscope with blade for adult			
2. Composition			
2.1 Main unit Handle with battery Blade Casing			
3. Performance Specifications			
3.1 Main Unit			
3.1.1	Material	All stainless steel	
3.1.2	Handle with battery	Stainless steel	
3.1.3	Blade	Mackintosh type, adult	
3.1.4	Blade size	3 Sizes: 100mm, 130mm, 155mm	
3.1.5	Power requirements	Dry cell battery, to be provided	
3.1.6	Casing	Provided	
4 Spare			
4.1	Spare bulb	2 pcs	
5 Quality standards			
5.1	Manufacturing standards	ISO 9001 or any other internationally recognized standards	
5.2	Conformity to standards	CE marked or any other internationally recognized documents	

Department	COVID-19	Room Name/No.	ICU
Item Code No.	28	Item Description	Laryngoscope with blade, Paediatric
1. General Description Laryngoscope with blade for Peadiatric			
2. Composition 2.1 Main unit Handle with battery Blade Casing			
3. Performance Specifications 3.1 Main Unit 3.1.1 Material All stainless steel 3.1.2 Handle with battery Stainless steel 3.1.3 Blade Mackintosh type, Peadiatric 3.1.4 Blade size 3 Sizes: Peadiatric 3.1.5 Power requirements Dry cell battery, to be provided 3.1.6 Casing Provided			
4 Spare 4.1 Spare bulb 2 pcs			
5 Quality standards 5.1 Manufacturing standards ISO 9001 or any other internationally recognized standards 5.2 Conformity to standards CE marked or any other internationally recognized documents			

Department	COVID -19	Room Name/No.	Operating room
Item Code No.	29	Item Description	Portable cardiac monitor
1. General Description Portable patient monitor suitable for use in operating theaters. Should be capable of continuous measuring/ monitoring of the following parameters in adults, neonatal and pediatric.			
<ul style="list-style-type: none"> • SpO₂ • Temperature • Blood pressure • ECG • Respiration • CO₂ • Pulse Rate 			
2. Composition			

2.1	Main unit	
3.	Performance Specifications	
3.1	Main Unit	
3.1.1	The unit should be a model or type on current production capable of measuring/monitoring the following parameters	
3.1.2	SpO ₂ , with reusable sensor	0 - 100% ± 3%
3.1.3	Pulse Rate	30-300 bpm ± 1%
3.1.4	Temperature	0-50 ⁰ C ± 0.1%
3.1.5	NIBP	Mean 10- 300mmHg ± 5 mmHg
	IBP	Mean 50 – 300mm Hg ± 1 mmHg
3.1.5	ECG	5 lead, configuration
	Respiration	0 to 150 breaths/min ± 2 breaths/ min
	CO ₂	0 to 99 mmHg ± 4 mmHg , Mainstream method
3.2	Display	10.4 to12.1 inches color TFT colour LCD, preferable touch screen type
3.2.1	Resolution about	800X 600
3.2.2		6 to 8 waveforms mode with large font
3.4	Recorder	Inbuilt, thermal array or equivalent
3.4.1		Two speed, selectable
3.4.2		Port for external printer
3.5	Networking	Port for networking with Ethernet or equivalent Or Serial Port RS 232
3.6	Input	In built with provision for connection of external Keyboard.
3.7	Storage	Capable of storing patient data and transferring to a PC for viewing or printing.
4	Safety requirements	
4.1	Audio and visual alarm	For all parameter.
4.2	Alarm setting limits	Adjustable by user
4.3	Low battery indicator	Audio and visual alarm
5	Internal battery	Provided, rechargeable, can operate for at least 3 hours
5	Physical characteristics	
5.1	Main unit	
5.2	Dimensions	Portable with a recharge dock or equivalent recharging unit
6	Operating environment	
6.1	Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug, 3m long cord BS type with PE
6.2	Internal rechargeable battery	Maintenance free type, Up to 8 hours operating time
6.3	Ambient temperature	10 ⁰ C to 40 ⁰ C
6.4	Relative humidity	40% to 90%
7	Accessories	

7.1	ECG connection lead and reusable electrodes	2 Set
7.2	SpO ₂ connection cable and sensor (finger probe), reusable	2 Sets
7.3	Adult cuff	3 Sets
7.4	Pediatric cuff	2 Sets
	Temperature connection cable and probe (reusable)	2 Sets
7.5	Recording paper	20 Boxes
7.6	Thermal head cleaner pen	1 No.
7.7	Grounding lead	1 No.
8	Consumable	
8.1	Manufacturers' recommended consumable for start up (CO ₂ , IBP, SpO ₂ , Temperature probe, Respiration pick up electrodes)	30 pcs
8	Spare parts	
8.1	Fuses	1 Set
8.2	Battery pack	1 Set
9	Quality standards	
9.1	Manufacturing standards	IEC 60601-1, ISO 9001 or any other internationally recognized standards
9.2	Conformity to standards	CE marked/ FDA approved or any other internationally recognized documents

Item Code No.	30	Item Description	Drip Stand
Department	COVID-19	Room Name/No.	N/A
1. General Description			
Drip stand			
2. Composition			
2.1 Main unit			
3. Performance Specifications			
3.1 Main Unit			
		Constructed from chrome plated mild steel	

3.2	Hook	Double hook
3.3	Height	Adjustable 1300mm to 2000mm
3.4	Castors	Four castors Ø 50mm, with brakes
4	Quality standards	
4.1	Manufacturing standards	ISO 9001 or any other internationally recognized standards
	Conformity to standards	CE marked or any other internationally recognized documents
5	Delivery point	
5.1	See Schedule	For inspection, installation and testing
5.2	Nil	

Item Code No.	31	Item Description	Trolley General Purpose
Department	COVID-19	Room Name/No.	ICU
1. General Description			
General purpose trolley constructed from epoxy coated mild steel frame, with shelves. The Unit should be mobile on four castors ϕ 100mm , 2 lockable			
2. Composition			
2.1 Main unit,			
3. Performance Specifications			
3.1	Main Unit	Mobile type	
3.1.1	Material	Epoxy coated mild steel	
	Shelves	Two stainless Steel shelves with three guard rails on each	
3.1.2	Top	Stainless steel tray with three guard rails	
3.1.4	Castors	Provided, heavy duty, Ø 100mm, 2 with brakes	
3.1.5	Push/Pull handle	Provided	
3.1.6	Approx. Size	L120X W 60 X H 90 cm	
4	Quality standards		
4.1	Manufacturing standards	ISO 9001 or any other internationally recognized standards	
	Conformity to standards	CE marked or any other internationally recognized documents	
5	Delivery point		
5.1	See Schedule	For inspection, installation and testing	
5.2	Nil		

Department	COVID -19	Room Name/No.	ICU
Item Code No.	32	Item Description	Nebulizer
1. General Description			
Nebulizer , mounted on a mobile cart			
2. Composition			
2.1 Main unit			
3. Performance Specifications			
3.1 Main Unit			
3.1.1	Type	Ultrasonic type	
3.1.2	Nebulizing rate	4 ml/min	
3.1.3	Mist particle	1 to 5 micron	
3.1.4	Timer	1 to 30 Minute	
3.1.5	Mist feed hose, adult	2 pcs	
3.1.6	Mist feed hose, Pead	2 pcs	
3.1.7	Inhalation mask, adult	10 pcs	
3.1.8	Inhalation mask, pead	10 pcs	
3.1.9	Mouth piece	10 pcs	
3.1.10	Diaphragm	5 pcs	
3.1.11	Water supply bottle (1L)	1 pc	
4 Physical characteristics			
4.1	Main unit	Mounted on mobile cart	
4.2	Dimensions		
5 Operating environment			
5.1	Power Requirements	240V, A/c 50 Hz, Single phase	
5.2	Ambient temperature	10° C to 40° C	
5.3	Relative humidity	40% to 90%	
6 Accessories			
6.1 Automatic Voltage Regulator (AVR)			
6.1.1	Capacity	Over VA of the main Unit	
6.1.2	Input	Ac 240V, 50Hz, Single phase ± 15%	
6.1.3	Output	Ac 240V, 50Hz, Single Phase ± 2.5 %	
7 Spare part			
7.1	Air filter	10 pcs	
8 Quality standards			
8.1	Manufacturing standards	IEC 60601-1, ISO 9001 or any other internationally recognized standards	
8.2	Conformity to standards	CE marked or any other internationally recognized documents	

Department	COVID -19	Room Name/No.	ICU
Item Code No.	33	Item Description	Piped Oxygen + Manifold for 10 Cylinder
1. General Description Medical Oxygen piping system complete with Manifold and accessories			
2. Composition			
2.1	Oxygen Bank		
2.3	Housing		
2.4	Medical Oxygen gas Piping System		
2.5	Bedside Electrical system and gas terminal		
3. Performance Specifications			
3.3	Medical Oxygen gas piping system	Provided from oxygen manifold to six ICU beds, approximate 15 m. Pipe work to comply with ISO standards	
3.4	Oxygen terminals	Provide BS standards Oxygen outlets 6 No.at 4 bars	
3.5	Safety devices	Provided to ISO standards	
3.6	Oxygen manifold	Provided for 10 Oxygen cylinders, bull nose type, complete with gas control station,, regulators, alarm system and shut off valves to ISO standards	
3.7	Oxygen cylinders	Provide, 10 No. 6.8m ³ each, Bull nose type	
3.8	Ventilation	Adequate ventilation provided for the manifold section.	
3.9	Electrical system	Provided, Bedhead unit 6 No. (For each ICU Bed)	
3.10	Bedhead unit	Each Bedhead unit to consist of 6 electrical sockets, and 1 Oxygen terminal to BS standards	
4	Quality standards		
4.1	Manufacturing standards	IEC 60601-1, ISO 9001 or any other internationally recognized standards	
4.2	Conformity to standards	CE marked or any other internationally recognized documents	
5	Installation and testing	Complete installation and set up of system as per manufacturer's instructions	
6	Training		
6.1	User Training	On site user training on operation and daily up keep	
6.2	Maintenance training	On-site maintenance training on preventive maintenance	
7	Technical documentations		

7.1	User manuals	2 Sets
7.2	Service Manual	2 Set
7.3	Drawings	2 Sets
8	Commissioning	
8.1	Testing and commissioning of the machine to the satisfaction of the user.	
9	Warranty	
9.1	Equipment	Minimum of one year after commissioning on all parts.
9.2	Equipment System	One year

Item No.	Code	34	Item Description	Wheel chair
Department	COVID-19	Room Name/No.	N/A	
1. General Description				
Wheel chair				
2. Composition				
2.1 Main unit				
3. Performance Specifications				
3.1 Main Unit				
3.1.1 Wheel chair, folding type, constructed from chrome plated robust mild steel (3/4"), push type and self-propelling, with footrest, brakes, washable seat and solid tyres. Seat and back upholstered with strong inner material and removable Plastic hand grips Cushioned arm rests Padded leg rest, removable Solid tyre wheels Rear wheel locks Metal side panels				
Size				
Overall length: 41 inches				
Overall width: 30 inches (unfolded)				
Depth: 16 inches				

Department	COVID -19	Room Name/No.	N/A
Item Code No.	35	Item Description	Hospital bed
1. General Description			
Standard hospital bed with side rails and back rest with adjustable back rest. Robust stainless steel construction on four antistatic castors ϕ 100mm, 2 lockable. With safety side			

rails and antistatic high density mattress covered with vinyl leather material.		
2. Composition		
2.1 Main unit		
3. Physical Specifications		
3.1 Main Unit		
3.1.1	Type	2 section
3.1.2	Material of main unit	Stainless steel or high grade epoxy coated mild steel
3.1.3	Head adjustment	Provided
3.1.4	Side rails	Drop down type
3.15	Mattress	High density form mattress with removable leather imitation material or Vitapruf cover (Water proof type)
3.1.5	Dimensions (Overall)	2000 mm(L) X 850mm (W) X 700mm(H)
3.1.6	Mobile	With 4 rubber castors ϕ 60mm, with locking system
3.1.7	Weight to handle	180 kg
4 Quality Standards		
4.1	Manufacturing standards	ISO 9001 or any other internationally recognized standards
4.2	Conformity to standards	CE marked or any other internationally recognized documents
5 Delivery point		
5.1	See Schedule	Delivery point
6 Warranty		
6.1	Equipment	Minimum of one year after delivery
6.2	Equipment System	Nil

Department	COVID -19	Room Name/No.	N/A
Item Code No.	36	Item Description	Sphygmomanometer, Digital
<p>General Description</p> <p>Sphygmomanometer, Digital, with electric pump, cuff and digital display. Internal battery operated, and complete in leather case.</p> <p>Accessories:</p> <ul style="list-style-type: none"> i) Velco cuff with Latex bag ii) Electrical pump iii) Digital display in mm Hg iv) Measurement range: 0 to 300mm Hg v) Dry cell, preferable AA size 			

Department	COVID -19	Room Name/No.	
Item Code No.	37	Item Description	Clinical thermometer
1. General Description			
Clinical thermometer, infra-red handheld type for measuring body temperature on the forehead.			
2. Composition			
2.1 Main unit			
3. Physical Specifications			
3.1 Main Unit			
3.1.1	Main frame material	Rigid plastic, hand held type with battery housing and display	
3.1.2	Display	LED with backlight and colour change	
3.1.3	Storage	Memory for storage of readings	
3.1.3	Battery	Dry cell	
3.1.4	Accuracy	$\pm 0.1^{\circ}\text{C}$	
4 Quality Standards			
4.1	Manufacturing standards	ISO 9001 or any other internationally recognized standards	
4.2	Conformity to standards	CE marked or any other internationally recognized documents	
5 Delivery point			
5.1	See schedule	Delivery point	
6 Warranty			
6.1	Equipment	Minimum of one year after delivery	
6.2	Equipment System	Nil	