

Laboratory

White Blood Cell Counter

No.	Item Specifications
	Technical Specifications
	A bench top hand differential counter, easy to use , with reset button, clear display.

Hematology analyzer

No.	Item Specifications
	Technical Specifications
	Automated differential blood count: Automated hematology instruments using multiple parameters and methods (such as impedance) are used to count and identify the 3 major white blood cell types in blood (so-called 3-part differential count); lymphocytes, monocytes/mixed population and granulocytes/neutrophils.
	18 parameters (WBC, TC, RBC, Hb, hematocrit, MCV, MCH, MCHc, RDWSD/RDW-CV, PLT, MPV, Pt Crit, PDW,
	PLCR optional), with 3-part WBC differential.
	Maximum sample volume required 50 µl.
	Screen Colour touch screen.
	Printer Built-in printer and external printer option.
	Memory for 1000 results incl. histograms.
	Program Built-in QC program for.
	3 levels/control
	Barcode reader and external option.
	External keyboard.
	Automatic sample dilution.
	Automated start up and shutdown.
	Auto probe wipe and external option.
	System must have throughput of atleast 60 samples per hour.
	Linearity of 18 parameters (Hematocrit, platelet, WBC, RBC, Hb) min.
	Touch screen.
	USB printer interface,
	ACCESSORIES, SPARE PARTS, CONSUMABLES
	1. 2D-Barcode Scanner .
	2. Reagents: All the reagents required for 1000 tests should be supplied with the equipment along with one set of tri
	level control.
	3. Closed System rate to be declared for cost/test.
	4. Calibrator - 1.
	Operating Environment
	The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%
	The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.
	Suitable UPS with maintenance free batteries for minimum 30 min. back-up shall be supplied with the system.
	Standards and Safety Requirements
	Must submit ISO13485:2003/AC:2007 for Medical Devices AND
	Should be FDA/CE/BIS approved product.
	Shall meet internationally recognised for Electromagnetic Compatibility(EMC) for electromedical equipment: 61326-1.

	Certified to be compliant with IEC 61010-1, IEC 61010-2-281, 61010-2- 101 for safety.
	User Training
	Must provide user training (including how to use and maintain the equipment).
	Warranty
	Comprehensive warranty for 2 years from acceptance.
	Maintenance Service During Warranty Period
	During the warranty period supplier must ensure planned preventive maintenance (PPM) and corrective/breakdown maintenance whenever required.
	Installation and Commissioning
	The bidder must arrange for the equipment to be installed and commissioned by certified or qualified personnel; any prerequisites for installation to be communicated to the purchaser in advance, in detail.
	Documentation
	User (Operating) manual in English Should provide 2 sets(hardcopy and soft-copy)
	Service (Technical / Maintenance) manual in English Should provide 2 sets(hardcopy and soft-copy)
	List of important spare parts and accessories with their part number and costing.
	Certificate of calibration and inspection from factory.
	Hematology analyzer
	Automated differential blood count: Automated hematology instruments using multiple parameters and methods (such as fluorescence, flow
	cytometry and impedance) are used to count and identify the 5 major white blood cell types in blood (so-called 5-part differential count):
	neutrophils, lymphocytes, monocytes, eosinophils and basophils.
	Parameters >= 25 Parameter+3 Histogram
	5 Differential WBC
	maximum sample required 100 µL sample size permits whole blood analysis from venous collections.
	Complete Hematogram<=50 sec
	Automatic Dilution and self cleaning
	Rack-based capacity for 150 samples
	throughput of CBC/Diff at 120 samples per hour
	Memory stores up to 5,000 patient results
	Comprehensive information management - from patient results to QC.
	Internal QC checks on every sample
	Parameters
	CBC Results
	Differential Results
	Platelet Results
	Reticulocyte Results
	Bi-Directional and Host Query Communication
	running cost details important and all start up kits neede for operation and calibration
	Operating Environment
	The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%
	The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.
	Suitable UPS with maintenance free batteries for minimum 30 min. back-up shall be supplied with the system.
	Standards and Safety Requirements
	Must submit ISO13485:2003/AC:2007 for Medical Devices AND
	Should be FDA/CE/BIS approved product.

	Shall meet internationally recognised for Electromagnetic Compatibility(EMC) for electromedical equipment: 61326-1.
	Certified to be compliant with IEC 61010-1, IEC 61010-2-281, 61010-2- 101 for safety.
	User Training
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	Warranty
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	Certificate of calibration and inspection from factory.

Coagulometer

No.	Item Specifications
	Technical Specifications
	Coagulometer
	Fully Automated Coagulation Analysis
	A microprocessor controlled desk top, coagulation analyzer to include PT, PTT, TT and thrombin.
	4 measuring channels
	Cap piercing
	Sample throughput up to 160 tests/h (without cap piercing)
	Sample throughput up to 120 tests/h (with cap piercing)
	Chromogenic, immunological and coagulometric tests
	Open system, suitable for almost all reagents
	Derived fibrinogen
	Positive patient identification, all commercial barcodes
	Automatic pre-dilution
	Automatic test repetition
	Automatic calibration curve creation
	Automatic level detection
	Follow up test (reflex test)
	Digitalised measuring results recording
	QC programme
	Up to 30,000 patients' data, incl. reaction curves
	Collection tubes
	Operating Environment
	The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%
	The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.
	Suitable UPS with maintenance free batteries for minimum 30 min. back-up shall be supplied with the system.

	Standards and Safety Requirements
	Must submit ISO13485:2003/AC:2007 for Medical Devices AND
	Should be FDA/CE/BIS approved product.
	Shall meet internationally recognised for Electromagnetic Compatibility(EMC) for electromedical equipment: 61326-1.
	Certified to be compliant with IEC 61010-1, IEC 61010-2-281, 61010-2- 101 for safety.
	User Training
	Must provide user training (including how to use and maintain the equipment).
	Warranty
	Comprehensive warranty for 2 years from acceptance.
	Maintenance Service During Warranty Period
	During the warranty period supplier must ensure planned preventive maintenance (PPM) and corrective/breakdown maintenance whenever required.
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	List of important spare parts and accessories with their part number and costing.
	Certificate of calibration and inspection from factory.
	Coagulometer
	semi-automatic 4 channels
	Twin channel coagulometer for routine tests: PT, a PTT, TT, Fibrinogen and clotting factors.
	To have 30 sample capacities 37 deg C dry incubation block.
	To have automatic counter, to grig off when starter reagent is added to sample and to stop when clot is formed.
	Results to be displayed and printed.
	To have recorder output for platelet aggregation
	☐ Measuring system Photometric
	Beam source Infra-red LED
	Incubation 37 deg C + 0.2 deg C
	Capacity 30 cuvette and 3 reagent bottles
	Display twin 3 digit 00.0 to 99.9 seconds.
	Keyboard 6 keys
	Printer 20 column, 64 characters.
	Operating Environment
	The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%
	The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.
	Suitable UPS with maintenance free batteries for minimum 30 min. back-up shall be supplied with the system.
	Standards and Safety Requirements
	Must submit ISO13485:2003/AC:2007 for Medical Devices AND
	Should be FDA/CE/BIS approved product.
	Shall meet internationally recognised for Electromagnetic Compatibility(EMC) for electromedical equipment: 61326-1.
	Certified to be compliant with IEC 61010-1, IEC 61010-2-281, 61010-2- 101 for safety.
	User Training

	Must provide user training (including how to use and maintain the equipment).
	Warranty
	Comprehensive warranty for 2 years from acceptance.
	Maintenance Service During Warranty Period
	During the warranty period supplier must ensure planned preventive maintenance (PPM) and corrective/breakdown maintenance whenever required.
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	Certificate of calibration and inspection from factory.

Wavelength Meter (UV)

No.	Item Specifications
	Description of Function
	UV/Visual spectroscopy is routinely used in the quantitative determination of solutions of transition metal ions and highly conjugated organic compounds. The instrument used in ultraviolet-visible spectroscopy is called a UV/Vis spectrophotometer. It measures the intensity of light passing through a sample (I), and compares it to the intensity of light before it passes through the sample (I ₀). In a double-beam instrument, the light is split into two beams before it reaches the sample. One beam is used as the reference; the other beam passes through the sample. Some double-beam instruments have two detectors (photodiodes), and the sample and reference beam are measured at the same time.
	Operational Requirements
	System Must provide for analysis of Protein, DNA / RNA & Enzyme kinetics etc.
	Microprocessor controlled Double beam spectrophotometer with scanning, kinetic and multi wavelength facility ,Self-check & self-diagnostic facility and Auto wavelength calibration facility
	System Configuration
	UV-visible Spectrophotometer, Dual Beam with complete accessories.
	Technical Specifications
	Single beam and double beam mode: Allow both modes
	Wavelength range: 190nm - 1100nm
	Photometric range :Minimum 2.0 Absorbance (Abs.) units
	Lamp switching: Allow both modes manual or automatic
	Band width : 0.2 nm - 4.0 nm or better, with 0.1 nm of increments
	Must have automatic baseline corrections
	Wavelength accuracy: Minimum of ± 0.2 nm
	Wavelength reproducibility: 0.05 nm or better
	Wavelength resolution: 0.2 nm or better
	Photometric accuracy: ± 0.003 Abs. units or better for 1.0 Abs. units
	Photometric stability: After 2 hour Must not be more than 0.0005 Abs. units/h
	Photometric reproducibility: Must not be more than 0.0005 Abs. units at 0.5 Abs. units
	Photometric noise: Must not be more than 0.0003 Abs. units at 1.0 Abs. units
	Scan speed: Must be between 0.25 nm/sec. and 8 nm/sec. or better
	Monochromator slew rate: Must be 1500 nm/min. or better
	Acquisition at more than one wavelength: Minimum of two
	Must have Data acquisition and processing system

	Must be Photometric scaling in Abs. units, %T, log Abs. units and concentration
	Must Abscise scaling in nm, min., deg. and mm
	Calibration at one or more levels and one or more wavelengths
	Must Calculate and give factor for linear regression and other
	Must Build and memorize in file form: data, method and report
	Accessories, spares and consumables
	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer. Bidders must specify the quantity of every item included in their offer (including items not specified above).
	Operating Environment
	The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%
	The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.
	Suitable UPS with maintenance free batteries for minimum 30 min. back-up shall be supplied with the system.
	Standards and Safety Requirements
	Must submit ISO13485:2003/AC:2007 for Medical Devices AND
	Should be FDA/CE/BIS approved product.
	Shall meet internationally recognised for Electromagnetic Compatibility(EMC) for electromedical equipment: 61326-1.
	Certified to be compliant with IEC 61010-1, IEC 61010-2-281, 61010-2- 101 for safety.
	User Training
	Must provide user training (including how to use and maintain the equipment).
	Warranty
	Comprehensive warranty for 2 years from acceptance.
	Maintenance Service During Warranty Period
	During the warranty period supplier must ensure planned preventive maintenance (PPM) and corrective/breakdown maintenance whenever required.
	Installation and Commissioning
	The bidder must arrange for the equipment to be installed and commissioned by certified or qualified personnel; any prerequisites for installation to be communicated to the purchaser in advance, in detail.
	Documentation
	User (Operating) manual in English Should provide 2 sets(hardcopy and soft-copy)
	Service (Technical / Maintenance) manual in English Should provide 2 sets(hardcopy and soft-copy)
	List of important spare parts and accessories with their part number and costing.
	Certificate of calibration and inspection from factory.

Electrolyte Analyzer

No.	Item Specifications
	Technical Specifications
	For analysis of electrolytes in laboratories or hospital point of care Units to measures electrolytes from whole blood, serum, plasma, Urine dialysate or aqueous standards.
	The machine can be configured to measure Na,K,and ionized Calcium Interchangeable electrodes Programmable correlation factors microprocessor controlled.
	Electrodes for : Sodium. Potassium, Chloride., Ionized Calcium, Lithium Reference System.
	Sample Size not more than 100 µL
	Measurement range for blood approx:

	Na+: 20 - 200
	K+: 0.2 - 40
	Cl-: 25 - 200
	Li+: 0.2 - 5
	Ca++: 0.1 - 6
	PH: 6- 8 units
	Measurement range for urine approx:
	Na+: 25 - 1000
	K+: 1 - 500
	Sample Application syringe,sample cup,collection tube,capillary
	Analysis Time (blood) not more than 1 min
	Analysis Time (urine) not more than 2 min
	Sample Rate minimum 60 sample/hour
	Built in printer
	Operating Environment
	The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%
	The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.
	Suitable UPS with maintenance free batteries for minimum 30 min. back-up shall be supplied with the system.
	Must submit ISO13485:2003/AC:2007 for Medical Devices AND
	Should be FDA/CE/BIS approved product.
	Shall meet internationally recognised for Electromagnetic Compatibility(EMC) for electromedical equipment: 61326-1.
	Certified to be compliant with IEC 61010-1, IEC 61010-2-281, 61010-2- 101 for safety.
	User Training
	Must provide user training (including how to use and maintain the equipment).
	Warranty
	Comprehensive warranty for 2 years from acceptance.
	Maintenance Service During Warranty Period
	During the warranty period supplier must ensure planned preventive maintenance (PPM) and corrective/breakdown maintenance whenever required.
	The bidder must arrange for the equipment to be installed and commissioned by certified or qualified personnel; any prerequisites for installation to be communicated to the purchaser in advance, in detail.
	Documentation
	User (Operating) manual in English Should provide 2 sets(hardcopy and soft-copy)
	Service (Technical / Maintenance) manual in English Should provide 2 sets(hardcopy and soft-copy)
	List of important spare parts and accessories with their part number and costing.
	Certificate of calibration and inspection from factory.

Colorimeter

No.	Item Specifications
1	Description of Function
1.1	General purpose colorimeter use in clinical laboratory.
2	Operational Requirements
2.1	Microprocessor controlled system.
3	System Configuration
3.1	Colorimeter with complete accessories.
4	Technical Specifications

4.1	Must have 8 no of filters wave length from 340 nm to 730 nm.
4.2	Must have a 2 digit LED display calibrated directly in optical density.
4.3	Detector must be encased spill proof photocell.
4.4	Must have facilities for concentration, calculation, percentage transmission and optical density.
4.5	Lamp source: Broad spectrum LED or halogen covering full visible range
5 Accessories, spares and consumables	
	☐ Square and round cuvette minimum volume 1ml.
	☐ Cuvettes: 10 nos.
	☐ Lamp: 02 nos
	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer.
6 Operating Environment	
6.1	The product offered shall be designed to be stored and to operate normally under Power Supply, Climate, Temperature, Humidity, etc. for Sudan.
6.2	Power supply: 220-240V/ 50 Hz AC Single phase with appropriate plug .The power cable must be minimum 3 Meter
7 Standards and Safety Requirements	
7.1	Must submit ISO13485:2003/AC:2007 for Medical Devices AND
7.2	CE (93/42 EEC Directives) or USFDA approved product certificate.
7.3	Must comply with IEC 61010 Safety requirements for electrical equipment for measurement, control, and laboratory use
8 User Training	
8.1	Must provide user training (including how to use and maintain the equipment).
9 Warranty	
9.1	Comprehensive warranty for 2 years after acceptance.
10 Maintenance Service During Warranty Period	
10.1	During the warranty period supplier must ensure corrective/breakdown maintenance whenever required.
11 Installation and Commissioning	
11.1	Supplier must accomplish proper installation and commissioning of the equipment on site.
12 Documentation	
12.1	User (Operating) manual in English
12.2	Service (Technical / Maintenance) manual in English
12.3	List of important spare parts and accessories with their part numbers and costing.
12.4	Certificate of calibration and inspection from factory.

Spectrophotometer

No.	Item Specifications
1 Description of Function	
1.1	UV/Visual spectroscopy is routinely used in the quantitative determination of solutions of transition metal ions and highly conjugated organic compounds. The instrument used in ultraviolet-visible spectroscopy is called a UV/Vis spectrophotometer. It measures the intensity of light passing through a sample (I), and compares it to the intensity of light before it passes through the sample (I ₀). In a double-beam instrument, the light is split into two beams before it reaches the sample. One beam is used as the reference; the other beam passes through the sample. Some double-beam instruments have two detectors (photodiodes), and the sample and reference beam are measured at the same time.
2 Operational Requirements	
2.1	System Must provide for analysis of Protein, DNA / RNA & Enzyme kinetics etc.
2.2	Microprocessor controlled Double beam spectrophotometer with scanning, kinetic and multi wave length facility ,Self-check & self-diagnostic facility and Auto wavelength calibration facility

3	System Configuration
3.1	UV-visible Spectrophotometer, Dual Beam with complete accessories.
4	Technical Specifications
4.1	Single beam and double beam mode: Allow both modes
4.2	Wavelength range: 190nm - 1100nm
4.3	Photometric range :Minimum 2.0 Absorbance (Abs.) units
4.4	Lamp switching: Allow both modes manual or automatic
4.5	Band width : 0.2 nm - 4.0 nm or better, with 0.1 nm of increments
4.6	Must have automatic baseline corrections
4.7	Wavelength accuracy: Minimum of ± 0.2 nm
4.8	Wavelength reproducibility: 0.05 nm or better
4.9	Wavelength resolution: 0.2 nm or better
4.10	Photometric accuracy: ± 0.003 Abs. units or better for 1.0 Abs. units
4.11	Photometric stability: After 2 hour Must not be more than 0.0005 Abs. units/h
4.12	Photometric reproducibility: Must not be more than 0.0005 Abs. units at 0.5 Abs. units
4.13	Photometric noise: Must not be more than 0.0003 Abs. units at 1.0 Abs. units
4.14	Scan speed: Must be between 0.25 nm/sec. and 8 nm/sec. or better
4.15	Monochromator slew rate: Must be 1500 nm/min. or better
4.16	Acquisition at more than one wavelength: Minimum of two
4.17	Must have Data acquisition and processing system
4.18	Must be Photometric scaling in Abs. units, %T, log Abs. units and concentration
4.19	Must Abscise scaling in nm, min., deg. and mm
4.20	Calibration at one or more levels and one or more wavelengths
4.21	Must Calculate and give factor for linear regression and other
4.22	Must Build and memorize in file form: data, method and report
5	Accessories, spares and consumables
5.1	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer. Bidders must specify the quantity of every item included in their offer (including items not specified above).
6	Operating Environment
6.1	The product offered shall be designed to be stored and to operate normally under Power Supply, Climate, Temperature, Humidity, etc. for Sudan.
6.2	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.
6.3	Suitable UPS with maintenance free batteries for minimum 30 min. back-up shall be supplied with the system.
7	Standards and Safety Requirements
7.1	Must submit ISO13485:2003/AC:2007 for Medical Devices AND
7.2	CE (93/42 EEC Directives) or USFDA approved product certificate.
7.3	Must be compliant with IEC 61010-1:(or any international equivalent e.g. EN/UL 61010) covering safety requirements for electrical equipment for measurement control and laboratory use.
8	User Training
8.1	Must provide user training (including how to use and maintain the equipment).
9	Warranty
9.1	Comprehensive warranty for 2 years from acceptance.
10	Maintenance Service During Warranty Period
10.1	During the warranty period supplier must ensure planned preventive maintenance (PPM) and corrective/breakdown maintenance whenever required.
11	Installation and Commissioning
11.1	The bidder must arrange for the equipment to be installed and commissioned by certified or qualified personnel; any prerequisites for installation to be communicated to the purchaser in advance, in detail.
12	Documentation

12.1	User (Operating) manual in English
12.2	Service (Technical / Maintenance) manual in English
12.3	List of important spare parts and accessories with their part number and costing.
12.4	Certificate of calibration and inspection from factory.

Chemistry analyzer

No.	Item Specifications
	Technical Specifications
	The Fully-automated Biochemistry Analyzer measures biochemical indexes by analyzing blood and other body fluid, then combines with other clinical information, to help diagnose disease, evaluate organs function, identify disease gene and determine the norm for future therapy.
	Automatic Analyzer
	random continuous access
	Sample Tray : >=80 samples, continuous loading, positive sample identification >= 200 test / hr
	Automatic calibration
	Sample Tray: capacity of >=80 patient sample Separate access to refrigerated area for on-board calibrators and controls.
	Reagent Storage Area:
	Refrigerated storage for >=40 one- or two-reagent chemistries plus open system capability –
	Calibration stability more than 10 days
	documentation on CD
	Host interface : bidirectional
	Auto-dilution : Automatic dilution from the original sample
	Auto-repeat : Automatic repeat testing from the original sample
	Automatic Clot Detection
	Sample Volume : from 1-5 µL
	Running cost details important and all start up kits needed for operation and calibration
	Operating Environment
	The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%
	The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.
	Suitable UPS with maintenance free batteries for minimum 30 min. back-up shall be supplied with the system.
	Standards and Safety Requirements
	Must submit ISO13485:2003/AC:2007 for Medical Devices AND
	Should be FDA/CE/BIS approved product.
	Shall meet internationally recognised for Electromagnetic Compatibility(EMC) for electromedical equipment: 61326-1.
	Certified to be compliant with IEC 61010-1, IEC 61010-2-281, 61010-2- 101 for safety.
	User Training
	Must provide user training (including how to use and maintain the equipment).
	Warranty
	Comprehensive warranty for 2 years from acceptance.
	Maintenance Service During Warranty Period
	During the warranty period supplier must ensure planned preventive maintenance (PPM) and corrective/breakdown maintenance whenever required.

	Installation and Commissioning
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	Certificate of calibration and inspection from factory.

Bilirubinometer Neonate

No.	Item Specifications
	Technical Specifications
	Device used to measure the concentration of bilirubin in neonate blood.
	Hand held compact, lightweight, easy to use.
	Large LCD screen with back light.
	Able to perform at least 300 measurements with fully charged battery.
	Measurement unit: mg/dL or $\mu\text{mol/L}$ (user selectable).
	Measuring range of at least 0.0 to 25 mg/dl or 0 to 425 $\mu\text{mol/Lt}$.
	Accuracy ± 1.5 mg/dl or ± 25.5 $\mu\text{mol/Lt}$ or better.
	Not need any disposable or consumable to operate.
	Light source life of 150K measurements or more.
	Weight no greater than 400 g.
	Capable of operating continuously in ambient temperature of 10 to 40°C, and relative humidity : 30% to 95%.
	Carrying case.
	Battery operated, with a charger single phase 220 V - 50 Hz, mono-phase electrical source
	Protections against over-voltage and over-current line conditions.
	Rechargeable batteries with battery condition indicator.
	Additional consumables and accessories not included in the bid price; quote each separately:
	Spare Battery.
	Spare Battery charger.
	Spare light source.

Hormone analyzer

No.	Item Specifications
	Technical Specifications
	Fully automated, sample selective analyzer for heterogeneous immunoassays, continuous loading, self contained Max. throughput 88 results/hr Serum, Plasma
	Load/unload capacity: 30 samples (Disk version) or 75 samples on 15 racks on one tray
	Rack: 5 positions, RD standard
	Tray: 15 racks/75 samples
	processed with priority
	Primary tubes: 5 to 10ml; 16x100, 16x75, 13x100, 13x75mm
	Sample cup: 2.5ml Cup on tube:
	Cup on tube: Cup on top of a 16x75/100mm 5 to 50 μl
	Ready to use Rack Packs with 2-D barcode temperature controlled reagent compartment (20°C) onboard capacity max. 15 tests 180 disposable cups
	360 disposable tips (Assay Tip), liquid level and clot detection, sample and test specific dilution
	Colored touch-screen monitor, customized keyboard and computer

	RS 232 serial interface, bi-directional, query and batch mode
	Running cost details important and all start up kits needed for operation and calibration
	Running cost details important and all start up kits needed for operation and calibration
	Operating Environment
	The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%
	The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.
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	User (Operating) manual in English Should provide 2 sets(hardcopy and soft-copy)
	Service (Technical / Maintenance) manual in English Should provide 2 sets(hardcopy and soft-copy)
	List of important spare parts and accessories with their part number and costing.
	Certificate of calibration and inspection from factory.

ELISA Reader with External Printer

No.	Specifications
	ELISA Reader with Printer
	Manufacturer
	Brand
	Type / Model
	Country of Origin
1	Description of Function
1.1	ELISA Reader is required to Read the Color Density known as OD (Optical Density) in ELISA (Enzyme Linked Immuno-Sorbent Assay.) Plates.
2	Operational Requirements
2.1	ELISA Reader complete with Printer is required.
3	Technical Specifications
3.1	Should have 8-12 measuring channel & reference channel
3.2	Should have wave length range of 340- 750 nm 6 filters 340, 405, 450, 492, 540, 630nm with provision for fitting any additional filters
3.3	Should have an absorption range of 0-4.000A
3.4	Should have a resolution of 0.001A

3.5	Should read within 6-8 seconds
3.6	The control panel should have soft color touch screen display, capable of showing graph etc.
3.7	Should have external & internal programmable time & speed shaking
3.8	Should be able to read all types of plates
3.9	Should have a single halogen lamp with save features as light source
3.1	Should have user defined programs 30 or more.
3.11	RS232/USB output for Printer, PC connectivity and Data acquisition should be there
3.12	Should have data memory of 300 plates.
3.13	Should have external printer, capable of printing complete results & graphs etc. from Elisa system
4	System Configuration Accessories, spares and consumables
4.1	System as specified.
4.2	Halogen Lamps : 2
4.3	External Printer
4.4	Dust Cover -01
4.5	Set of pipettes consisting of single channel variable volume color pipettes 0.5-10 ul, 5-40 ul, 40-200 ul, 200-1000 ul
4.6	8 channel variable volume color multi-channel pipettes 5-50 ul and 50-300 ul.
5	Environmental factors
5.1	The product offered shall be designed to be stored and to operate normally under the conditions of the purchaser's country. The conditions include Power Supply, Climate, Temperature, Humidity, etc.
6	Power Supply
6.1	Must work on 220-240V/ 50 Hz AC Single phase fitted with appropriate plugs and sockets. The power cable must be minimum 3 meters long.
6.2	Resettable overcurrent breaker shall be fitted for

ELISA Washer

No.	Specifications
1	Description of Function
1.1	A washer for microtitre plates designed to ensure thorough washing of reagents between Enzyme-Linked Immunosorbent Assay (ELISA) steps.
2	Operational Requirements
2.1	8 channel.
3	System Configuration
3.1	ELISA Washer, automatic, complete unit with complete accessories.
4	Technical Specifications
4.1	8-channel strip manifold, open system.
4.2	Rinse & prime programme.
4.3	Wash parameters include: 16-character assay name, number of cycles, wash volume, flow rate and variable soak times.
4.4	Dispense only and aspirate only modes for reagent addition and removal.
4.5	Shall have built-in multi-speed shaker for improved CVs and reduced assay backgrounds.
4.6	Shall have crosswise aspiration/double aspiration of flat bottom micro-plates for reduced residual liquid.
4.7	Bottom wash mode for rapid dilution of reagent.
4.8	Shall have built-in vacuum & pressure pump assembly.
4.9	Bottles for waste rinse and wash.
4.1	Accommodates flat, U or V-shaped bottom plates.
4.11	Wash cycles: Between 1-10.
4.12	Dispensing volumes from 25 to 3000ul.
4.13	Soak time 1-600 seconds.
4.14	Fluid flow rate in 150 to 1000ul/well/second to accommodate cellular assays.

4.15	Spill-over protection & electronics isolated from fluidics.
4.16	Optional automatic buffer switch in flip out aerosol cover or similar.
5 Accessories, spares and consumables	
5.1	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer. Bidders must specify the quantity of every item included in their offer (including items not specified above).
6 Operating Environment	
6.1	The product offered shall be designed to be stored and to operate normally under the conditions of the purchaser's country. The conditions include Power Supply, Climate, Temperature, Humidity, etc.
6.2	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 meter in length.
6.3	Suitable UPS with maintenance free batteries, voltage regulation and spike protection for minimum 30 min. back-up shall be supplied with the system.
7 Standards and Safety Requirements	
7.1	Must submit ISO13485:2003/AC:2007 for Medical Devices AND
7.2	CE (93/42 EEC Directives) or USFDA approved product certificate.
7.3	Shall meet IEC 61010-2-081 safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-081: Particular requirements for automatic and semi-automatic laboratory equipment for analysis and other purposes.
8 User Training	
8.1	Must provide user training (including how to use and maintain the equipment).
9 Warranty	
9.1	Comprehensive warranty for 2 years after acceptance.
10 Maintenance Service During Warranty Period	
10.1	During warranty period supplier must ensure corrective/breakdown maintenance whenever required.
11 Installation and Commissioning	
11.1	The bidder must arrange for the equipment to be installed and commissioned by certified or qualified personnel; any prerequisites for installation to be communicated to the purchaser in advance, in detail.
12 Documentation	
12.1	User (Operating) manual in English.
12.2	Service (Technical / Maintenance) manual in English.
12.3	List of important spare parts and accessories with their part numbers and costing.
12.4	Certificate of calibration and inspection from factory.

Lab Incubator

No.	Item Specifications
	Technical Specifications
	1 Description of Function
	1.1 Incubators are required to incubate living culture at a uniform temperature above ambient.
	2 Operational Requirements
	2.1 System with temperatures up to 50 deg C - specifically for incubating living cultures at 37 deg C and at 45 deg C as required.
	3 Technical Specifications
	3.1 Capacity: within 50-60L
	3.2 Interior chamber: Stainless steel for easy cleaning and decontamination
	3.3 Timer: 1 min. to 100 hours and hold position
	3.4 Temp range 5 deg C above ambient to 50 deg C
	3.5 Minimum 4 adjustable shelves should be available.
	3.6 Internal glass door for the observation

	3.7 Temp Accuracy +/-1% of required temp, with inbuilt Temp.Sensor
	3.8 Adjustable safety thermostat for temp setting at 1 deg C increment
	3.9 Minimum turbulence and no cross contamination
	3.10 In case of total breakdown of sensor, the heating should be switched off at approx. within 3 °C above set value.
	3.11 There should be a Membrane Keypad with LCD/LED to set and display operating parameters, current status, running time and alarm conditions for time and temperature.
	3.12 Interior lighting facility, insulated door fitted with heavy
	4 System Configuration Accessories, spares and consumables
	4.1 System as specified-
	5 Environmental factors
	5.1 The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
	5.2 The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%
	6 Power Supply
	6.1 Power input to be 220-240VAC, 50Hz fitted with Sudanese plug
	6.2 Resettable overcurrent breaker shall be fitted for protection
	6.3 Suitable voltage corrector/stabilizer
	6.4 Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.
	7 Standards and Safety
	7.1 Should be compliant to ISO 13485: Quality systems - Medical devices - Particular requirements for the application of ISO 9001
	7.2 Should be FDA or CE or ISI approved product
	7.3 Comprehensive training for lab staff and support services till familiarity with the system.
	7.4 Attach original manufacturer's product catalogue
	8 Documentation
	8.1 Certificate of calibration and inspection from factory.
	8.2 List of Equipments available for providing calibration and routine maintenance support as per manufacturer documentation in service / technical manual.
	8.3 User/Technical/Maintenance manuals to be supplied
	8.4 List of important spare parts and accessories with their part number and costing.
	8.5 Log book with instruction for daily , weekly, monthly and quarterly maintenance checklist.

Water bath

No.	Item Specifications
	Technical Specifications
	1 Description of Function
	Digital Temperature Control
	Capacity approx: 10 liter
	Temp 30-100c
	Temperature Sensitivity: +/- 0.5°C.
	Temperature sensor : PID
	Body : Inner body SS and outer body MS with powder Coated.
	With Mixing Unit
	Stainless Steel
	Safety Thermostat
	Accessories
	Stainless Steel Racks

	Flat lids With Rings Cover
	Input power supply: 220/240 volt AC , 50Hz Schuko plug

Microscope

No.	Item Specifications
1	Description of Function
1.1	Compound microscope consists of two or more than two magnifying lenses. One can view individual cells, even living ones. It has high magnification
2	Operational Requirements
2.1	System complete with illumination system is required.
3	System Configuration
3.1	Binocular Microscope Compound with complete accessories
4	Technical Specifications
4.1	Body :Binocular, sturdy, stable base body with focus adjustment controls
4.2	Eye piece : Paired, high quality, (the image of the object as seen through the binocular eyepiece must be well defined centrally in at least 2/3 field of view), achromatic, wide field, 10x and 15x without inbuilt pointer. The eyepiece must be aplanatic and have a minimum field number of 18. Dioptre adjustment must be present on one/ both eye pieces or on the eye piece tube
4.3	Objective : Four 4x, 10x, 40x, 100x.
4.4	10x and 40x objectives must have numerical apertures of 0.25 and 0.65 respectively and must be of spring loaded type or otherwise.
4.5	100x must have numerical aperture of 1.25 and must be of oil immersion and spring loaded type.
	Suitable prominent marking must be provided on 100x for easy identification.
4.6	Unbreakable containers to be provided for storing the objectives. All objectives must be wide field, achromatic and par focal.
4.7	Making for the Objectives : Each objective must be engraved with the following information:-
	☐ Name of the manufacturer
	☐ Magnification and numerical aperture, for example, 10x/0.25
	☐ 100x objective must be engraved with the word 'Oil'
4.8	Nose piece: Revolving nose piece to accommodate four objectives with click stops. It must be provided with ribbed grip for easy rotation mounted on a precision ball bearing mechanism for smooth and accurate alignment. Extra ports if any must be fitted with dust proof metallic/ebonite caps.
4.9	Stage Uniformly horizontal, mechanical stage having dimensions of length 140 mm (+/- 20mm) with fine vernier graduations (minimum reading accuracy of 0.1 mm). the stage must be provided with spring loaded slide holder for exact positioning of specimen/ slide. It must be designed with convenient sub-stage vertical coaxial adjustment for slide manipulation. The stage must have ball-bearing arrangement to allow smooth travel in transverse directions i.e. 80 mm (+/-5mm) and front to back direction, 50mm (+/-5mm)
4.10	Sub-stage condenser: Abbe-type condenser, numerical aperture (N.A.) 1.25 focusable with rack and pinion arrangement incorporating a spherical lens and an iris-diaphragm. The condenser must have a filter holder and removable/ swing in/ out blue filter (suitable for bright field Microscopy).
4.11	Sub-stage illuminator: 1.The system must have a build-in variable light source (Illuminator). This source must have a 20 W, 6/12 V Halogen lamp. The circuitry for the light source must include a constant voltage supply. The system must be provided with a step down transformer and an on-off switch and intensity control. The lamp must be provided with a lamp socket which has the facility for easy replacement of the bulb. light
4.12	The Illuminator must have a build-in field diaphragm for Kohler illumination.

4.13	Eye piece tubes: Binocular eye piece tubes, inclined at 30 and 45 degrees, rotatable through an angle of 360 degrees, having inter-pupillary distance range of 54-74 mm or wider, covering the above mentioned range
4.14	Focusing knob: Co-axial coarse and fine focusing knobs capable of smooth fine focusing movement over the full range of coarse travel. The fine focusing movement must have sensitivity of two microns or less (finer) over the entire coarse focusing stop safety arrangement must be provided.
4.15	General 1 .All optical parts including objectives, eye pieces and prisms must have anti-reflective coating which also gives anti-fungal property.
	☐ All metallic parts must be corrosion-proof, acid-proof and stain-proof
	☐ A bottle of at least 25 ml immersion oil, a roll of lens tissue paper and lens cleaning solution (100 ml) must be provided with each microscope.
	☐ One no. of anti-static cleaning brush must be provided with each Microscope for cleaning purpose.
	☐ Each Microscope must be supplied with Blue filters. The Blue filter must be packed in the box and not fixed on the Microscopes.
5 Accessories, spares and consumables	
5.1	Accessories:
	☐ 100x oil immersion objective – one.
	☐ Halogen bulb, (6/12volts, 20w) – 6 Nos.
	☐ Fuses – 6 Nos.
5.2	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer. Bidders must specify the quantity of every item included in their offer (including items not specified above).
6 Operating Environment	
6.1	The product offered shall be designed to be stored and to operate normally under Power Supply, Climate, Temperature, Humidity, etc. for Sudan.
6.2	Power supply: 220-240V/ 50 Hz AC Single phase fitted with appropriate plug to meet purchaser's country requirements. The power cable must be minimum 3 metres long.
6.3	Voltage corrector/stabilizer of appropriate ratings meeting international standards.(Input 160-260 V and output 220-240 V and 50 Hz)
7 Standards and Safety Requirements	
7.1	Must submit ISO13485:2003/AC:2007 for Medical Devices AND
7.2	CE or US FDA approved product certificate.
8 User Training	
8.1	Must provide user training (including how to use and maintain the equipment).
9 Warranty	
9.1	Comprehensive warranty for 2 years after acceptance.
10 Maintenance Service during Warranty Period	
10.1	During warranty period supplier must ensure corrective/breakdown maintenance whenever required.
11 Installation and Commissioning	
11.1	The bidder must arrange for the equipment to be installed and commissioned by certified or qualified personnel; any prerequisites for installation to be communicated to the purchaser in advance, in detail.
12 Documentation	
12.1	User (Operating) manual in English
12.2	Service (Technical / Maintenance) manual in English
12.3	List of important spare parts and accessories with their part numbers and costing.
12.4	Certificate of calibration and inspection from factory.

Centrifuge

No.	Item Specifications
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1	Description of Function
1.1	Centrifuges are required in the laboratory to separate various components of Blood for analysis.
2	Operational Requirements
2.1	Aerodynamic compact construction for vibration free performance.
3	System Configuration
3.1	Centrifuge with complete accessories, adaptors.
4	Technical Specifications
	Volume of tube: 15 ml.
	Rotor Type: Fixed OR swing-out to take 6x15ml - 12x15ml tubes
	Speed Range: 4000 - 6000 rpm (or higher)
	Drive Motor: Brushless motor.
	Digital display and control for speed and time.
	Stainless Steel Chamber.
	LID Lock.
	Line voltage: 220 ± 20 % 50 Hz.
5	Accessories, spares and consumables
	☐ Aerosol-resistant caps for buckets / lid for rotor
	☐ Adapters for 15 ml tubes
	☐ UPS/voltage regulator
	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer.
6	Operating Environment
6.1	The product offered shall be designed to be stored and to operate normally under Power Supply, Climate, Temperature, Humidity, etc. for Sudan.
6.2	Power supply: 220-240V/ 50 Hz AC Single phase with appropriate plug .The power cable must be minimum 3 Meter
7	Standards and Safety Requirements
7.1	Must submit ISO13485:2003/AC:2007 for Medical Devices AND
7.2	CE (93/42 EEC Directives) or USFDA approved product certificate.
7.3	Must comply with IEC/TR 61010-3-020 :Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 3-020: Conformity verification report for IEC 61010-2-020:1992 Particular requirements for laboratory centrifuges"
8	User Training
8.1	Must provide user training (including how to use and maintain the equipment).
9	Warranty
9.1	Comprehensive warranty for 2 years after acceptance.
10	Maintenance Service During Warranty Period
10.1	During the warranty period supplier must ensure corrective/breakdown maintenance whenever required.
11	Installation and Commissioning
11.1	Supplier must accomplish proper installation and commissioning of the equipment on site.
12	Documentation
12.1	User (Operating) manual in English
12.2	Service (Technical / Maintenance) manual in English
12.3	List of important spare parts and accessories with their part numbers and costing.
12.4	Certificate of calibration and inspection from factory.

Water distiller

No.	Item Specifications
	Technical Specifications
	Minimum Distilled water output: 4L/h
	Maximum water supply required: 1L/min

	Flow regulator for water supply
	Conductivity of water produced: 2 µS/cm or less
	Automatic cut-out for low water level in the boiler
	Automatic switch off when distillate reservoir is full
	Heating elements should be silica glass sheathed
	Power supply: 220/240 volt VAC , 50Hz Schuko plug. The power cable must be at least 3 metres in length.

Urine Analyzer

No.	Item Specifications
	Technical Specifications
	Used in biochemical labs for identification of specific bio-chemical marker in urine like Glucose, Ketones proteins pH etc. in clinical conditions like Diabetes, Renal failure Acidosis etc.
	Type: reflectance photometer Throughput of min 50 strips/hour at two.levels - normal and abnormal.
	Memory: patient test results: 1000 and QC test results: 50.
	Display: touch-screen LCD Should have flagging facility Should be Able to analyse 10 Parameters: Leucocytes, Nitrite, Urobilinogen,Protein, pH, Blood Specific: gravity, Ketones, Bilirubin, Glucose.
	Test Strips price to be declared and 1000 test strips to be provided.
	Calibration strip 2.
	Operating Environment
	The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%
	The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.
	Standards and Safety Requirements
	Must submit ISO13485:2003/AC:2007 for Medical Devices AND
	Should be FDA/CE/BIS approved product.
	Shall meet internationally recognised for Electromagnetic Compatibility(EMC) for electromedical equipment: 61326-1.
	Certified to be compliant with IEC 61010-1, IEC 61010-2-281, 61010-2- 101 for safety.
	User Training
	Must provide user training (including how to use and maintain the equipment).
	Warranty
	Comprehensive warranty for 2 years from acceptance.
	Maintenance Service During Warranty Period
	During the warranty period supplier must ensure planned preventive maintenance (PPM) and corrective/breakdown maintenance whenever required.
	Installation and Commissioning
	The bidder must arrange for the equipment to be installed and commissioned by certified or qualified personnel; any prerequisites for installation to be communicated to the purchaser in advance, in detail.
	Documentation
	User (Operating) manual in English Should provide 2 sets(hardcopy and soft-copy)
	Service (Technical / Maintenance) manual in English Should provide 2 sets(hardcopy and soft-copy)
	List of important spare parts and accessories with their part number and costing.
	Certificate of calibration and inspection from factory.

PH Meter

No.	Item Specifications
	Technical Specifications
	Measures pH range : 0-14, Resolution : 0.1, 0.01, 0.001, Accuracy : ± 0.02
	Resolution: 0.1, Accuracy: $\pm 0.1\text{mV}$: ± 2000 , Accuracy: $\pm 0.01^\circ\text{C}$, Resolution: 0.1, Accuracy: ± 0.2
	Automatic temperature compensation with slope correction
	Three point calibration
	Buffer solution of pH 4, 7 and 10 for calibration.
	Spare set of electrode with washing bottle.
	Simultaneous measurement of pH, mV and temperature.
	Calibration data with date and time.
	Calibration reminder alarm.
	Audible beep indication during valid key operation.
	Combined pH and conductivity measurement.
	Power : AC adapter, optional AA batteries
	Water proof Interface : USB or RS 232
	Display : 4 Digit LCD
	With automatic temperature controller probe,
	Automatic temperature compensation with slope correction

Shaker

No.	Item Specifications
	Technical Specifications
	Bench mounted on non-slip feet. On/Off switch and variable speed control.
	To hold up to 12 test tubes in special rack
	The shaker is to have 20 -200 oscillations/ min,
	digital speed and time display, and choice of orbital movement.
	Input power supply: 220/240 volt AC , 50Hz Schuko plug

Hot Plate With Magnetic Stirrer

No.	Item Specifications
	Technical Specifications
	Temperature Range : Above Ambient to 160°C
	Speed : 100-1400rpm
	Heating coil : Strip Heater
	Temperature Controller : Digital
	Temperature accuracy: $\pm 5^\circ\text{C}$.
	Construction: Mild steel with Powder coated body.
	Stirring capacity: 2 ltrs.
	Stirring speed : 100 To 1400 rpm
	Control : Feed back control
	Rpm Indicator : Analogue
	Platform : SS 316
	Working Condition: 4 to 60°C .
	Input power supply: 220/240 volt AC , 50Hz Schuko plug

Vortex Mixer

No.	Item Specifications
	Technical Specifications
	A suspension mixer enabling controlled and reproducible conditions to be maintained.
	Suitable for Coombes, serological, agglutination tests and mixing blood.

	Speed 10-100 rpm
	Angle to tilt 0-15 deg continuously variable
	Power supply: 220/240 volt VAC , 50Hz Schuko plug. The power cable must be at least 3 metres in length.

Blood Bank Refrigerator

No.	Item Specifications
1	Description of Function
1.1	Blood Bank Refrigerator is used to store blood bags under controlled temperature.
2	Operational Requirements
2.1	System required with weekly chart recorder and digital display.
3	System Configuration
3.1	Blood Bank Refrigerator with weekly chart recorder, digital display and with complete accessories.
4	Technical Specifications
4.1	Temperature range:
	Must have adjustable temperature control range from +2 to +6 . It shall maintain internal temp at 4 oC & the uniformity of this temperature must be maintained throughout the chamber with the maximum average temperature variation of +/- 1 oC between different chambers.
4.2	Capacity must accommodate 150 blood bags and size will be approximately 250 litres.
4.3	Blood Bank Refrigerator shall have integrated temperature monitoring system with microprocessor controls.
4.5	The blood bank refrigerator shall have a large LCD which displays:
	☐ Temperature.
	☐ High & Low alarm points with date & time.
	☐ Previous 24 hour temperature in graphical form.
	☐ Data of power failure/resumption in last 24 hours with date & time.
4.6	The blood bank refrigerator shall also have an inbuilt circular chart recorder for 7 days recording of temperature on circular chart paper.
4.7	The internal automatic temperature alarm system shall work if a temperature falls below 2 oC & exceeds beyond 6 oC.
4.8	The internal temperature alarm system shall also have a battery backup of minimum 3-4 hours.
4.9	Internal construction must be made up of high grade stainless steel 304 (min 22 G). External construction Corrosion resistant sheet at least 1 mm thickness.
4.1	It shall have lockable door. Outer door shall be made of glass to see through and inner door shall be made of acrylic sheet to ensure ease of operations, better maintenance of internal temperature.
4.11	Blood Bank Refrigerator shall confirm to noise level of less than 85 dBA as per IEC 61010.
4.12	Internal cabinet lighting to be provided with lamp illumination whenever door opens.
4.13	Shall come with roll out steel trays for proper storage of blood bags.
4.14	Blood bank refrigerator shall have in built servo controlled voltage stabilizer of suitable rating.
4.15	Shall have adjustments for uneven bases. The adjustments must be easy to use like rotating a screw at the legs in the base.
5	Accessories, spares and consumables
5.1	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer.
6	Operating Environment
6.1	The product offered shall be designed to be stored and to operate normally under Power Supply, Climate, Temperature, Humidity, etc. for Sudan.

6.2	Power supply: 220-240V/ 50 Hz AC Single phase with appropriate plug .The power cable must be minimum 3 Meter
6.3	Suitable Automatic Voltage regulator/stabilizer meeting international standards must be supplied. Broad specifications are: Automatic Type Input 150-280V, Output 220 V +/- 7 %, 50 Hz. Single phase, AC with automatic 2-4 sec Cut Off and 6-9 minutes restart delay. Quick start arrangements for bypassing the start delay. Suitable MCB on input voltmeter and indicators on Front Panel. Input Pore Cable with 15 A Plug and six way output terminal strip for two outlets
7	Standards and Safety Requirements
7.1	Must submit ISO 9001 or ISO13485:2003/AC:2007 AND
7.2	Must comply with WHO/UNICEF Specification Reference: BTS/RF.1 and DIN 58371.
7.3	Test and inspections as per WHO Procedure reference: Laboratory Test Procedure: Standard Test Procedure: BTS/Proc. / 3.
7.4	Shall meet IEC 60335-1and -2-24 General requirements of electrical safety.
8	User Training
8.1	Must provide user training (including how to use and maintain the equipment).
9	Warranty
9.1	Comprehensive warranty for 2 years after acceptance.
10	Maintenance Service During Warranty Period
10.1	During the warranty period supplier must ensure planned preventive maintenance (PPM) and corrective/breakdown maintenance whenever required.
11	Installation and Commissioning
11.1	The supplier must accomplish proper commissioning of the item onsite.
12	Documentation
12.1	User (Operating) manual in English
12.2	Service (Technical / Maintenance) manual in English
12.3	List of important spare parts and accessories with their part number and costing.
12.4	Certificate of calibration and inspection from factory.

Cold Centrifuge

No.	Item Specifications
	Technical Specifications
	Lid locking and holding
	Emergency lid lock release
	Motor overheating protection
	Imbalance switch-off
	Standstill indication
	Benchtop centrifuge, refrigerated
	Capacity 4x250ml, swing-out rotor
	Speed/ RCF: n=15000min/RCF24400
	temp: controlable from -20°C to +40°C
	Power supply: 220/240 volt VAC , 50Hz Schuko plug. The power cable must be at least 3 metres in length.

Hemoglobin Meter

No.	Item Specifications
	1 Technical Specifications
1.1	Portable device used for quantitative determination of hemoglobin in capillary, venous or arterial blood.
1.2	Should have the following features:
1.3	Compact, lightweight, easy to use.
1.4	Dual power supply, battery and AC adapter.
1.5	Sample type: whole blood

1.6	Sample size one drop (approximately 12 µL)
1.7	Measuring range 0 - 25 g/dl
1.8	Accuracy: CV $\pm$ 1.5 % or better
1.9	Indicator Large LCD screen.
1.10	Build-in quality control feature for verification of the analyzer
1.11	Low battery indicator.
1.12	Accessories: AC adaptor, test strips or cuvettes, quality control strip or cuvette.
1.13	Construction: Hand held
2 Operating Environment	
2.1	The product offered shall be designed to be stored and to operate normally under Power Supply, Climate, Temperature, Humidity, etc. for Sudan.
3 Standards and Safety Requirements	
3.1	Must submit ISO13485:2003/AC:2007 for Medical Devices AND
3.2	CE (93/42 EEC Directives) or USFDA or TUV approved product certificate.
4 User Training	
4.1	Must provide user training (including how to use and maintain the equipment).
5 Warranty	
5.1	Comprehensive warranty for 2 years after acceptance.
6 Maintenance Service during Warranty Period	
6.1	During warranty period supplier must ensure corrective/breakdown maintenance whenever required.

Platelet agitator and Incubator

No.	Item Specifications
	Technical Specifications
	Stainless steel chamber with adjustable shelves and a tough ended glass inner viewing door.
	The outer cabinet is to be rust resistant.
	Temperature Control detail required:-
	An LED display to show the chamber temperature, Indicator
	Lamps to show when the heater is active and if an over temperature condition exists.
	The over temperature safety cut-out to be set by the user.
	Fitted with circulation fan.
	Temperature Range : At least 5°C above ambient to +60°C
	Control (fan) : $\pm 0.1^\circ\text{C}$ at +37°C
	Variation (fan) : $\pm 0.25^\circ\text{C}$ at +37°C
	Chamber Capacity: 80 - 100 Litres
	Shelves: 3
	System Configuration Accessories, spares and consumables
	System as specified-
	Environmental factors
	The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
	The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%
	Power Supply
	Power input to be 220-240VAC, 50Hz fitted with Sudanese plug
	6.2 Resettable overcurrent breaker shall be fitted for protection
	Suitable voltage corrector/stabilizer
	Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.
	Standards and Safety
	Should be compliant to ISO 13485: Quality systems - Medical devices - Particular requirements for the application of ISO 9001

	Should be FDA or CE or ISI approved product
	Comprehensive training for lab staff and support services till familiarity with the system.
	Attach original manufacturer's product catalogue
	Documentation
	Certificate of calibration and inspection from factory.
	List of Equipments available for providing calibration and routine maintenance support as per manufacturer
	documentation in service / technical manual.
	User/Technical/Maintenance manuals to be supplied
	List of important spare parts and accessories with their part number and costing.
	Log book with instruction for daily , weekly, monthly and quarterly maintenance checklist.

PCR machine

No.	Item Specifications
	Technical Specifications
	The machine should be single bay Cyclor to hold different blocks like 96well ,dual block of 48x48x0.2ml etc
	Temp Range:0 Deg C -105 Deg C
	Dynamic Gradient facility for accurate Temp and Time optimization
	Machine should have Dual Blocks for 48 x 48 for 0.2 ml, and 96well block for 0.2 ml
	Ramping rate : 3 Deg C/Second
	Thumbwheel adjustable and temperature programmable heated lid.
	Program Restart option after power failure at least for 4 hrs.
	Program capacity at least 400 programmes with password protected folders.
	Multizone feedback control to optimize Thermal profiles
	System should be networkable.
	Future upgradability to dual 16x16 insitu block,384 well plate block,dual block with 0.2& 0.5ml tubes simultaneously & real time block
	Operating should be done in between 4 deg to 32 deg c.
	Input power supply: 220 ± 20 % V AC , 50Hz

Biological Safety Cabinet

No.	Item Specifications
	Technical Specifications
	Microprocessor controlled Class-2 type A2 biological safety cabinet suitable for working with microorganisms assigned to biological
	safety levels 1, 2 & 3, providing full protection to personnel, specimens and environment.
	NSF International standard 49 / EN 12469 certified and tested. Certificate is to be provided along with.
	HEPA H14/ULPA filters on inflow as well as exhaust with an efficacy of 99.999% for equal or more than 0.3 µ size particles (DOP test
	Certificate to be produced).
	30% exhaust air via high performance exhaust filter and 70% air should be recirculated.
	Dimensions of work chamber in the range of 1100-1300 mm (L), 500-700 mm (W), 550-800 mm (H).
	Main body made up of rust proof stainless steel single piece (sides and back wall).
	Safe and ergonomic design for movement in all directions in the chamber (Comfort for users while working).
	Sliding front window, electrically operated, made up of safety (UV) glass, completely tight sealed while closed for complete protection
	against contamination and fumigation.
	Independent fans for impulsion and exhaust.

	UV lamp with auto regulatory mechanism to work only when the front panel is fully closed.
	Display of the following parameters:
	a. Optical & acoustic notification of alarms.
	b. Low exhaust flow.
	c. Low down flow air velocity.
	d. Impulsion/exhaust fan malfunction.
	e. Cabinet information (with digital display).
	f. Exhaust air flow in m ³ /hr.
	g. Laminar flow air velocity in m/sec.
	h. Elapsed hour meter for UV.
	i. Cabinet Temperature
	Stainless steel pan under working surface to allow safe collection of spilled fluid.
	Low noise level <65dBA
	Service ports with stopcock at both ends for gas.
	Minimum one electrical socket inside the chamber.
	Light intensity in the working chamber should not be less than 1000 Lux.
	Working aperture 200 - 220 mm.
	It should have an adjustable chair and a foot rest.
	Cabinet should be mounted on a compatible wheel trolley.
	leakage of UV rays and to ensure containment of potential hazardous material.
	Essential Accessories
	One inflow HEPA H14/ULPA filter and (Original & compatible to the cabinet, DOP tested)
	should be supplied in addition by the firm with each of the cabinets as spare accessories.
	Input power supply: 220 ± 20 % V AC , 50Hz

Glucometer

No.	Item Specifications
1	Hand held type Glucometer
2	Battery operated
3	Memory up to 10 measurements
4	Sticks method measurements
5	Code of sticks interrering is available
6	Indication of high and low measurements
7	With Start up kits
8	Case is included
9	One box of sticks and punctures is included
10	Operating instructions is included

Tissue Embedding Center

No.	Item Specifications
1	Description of Function
	1.1 The Paraffin Tissue Embedding Center (TEC) is a modular unit for moderate to heavy workloads in the preparation of wax tissue blocks.
	2 Operational Requirements
	2.1 System should be modular and complete with microprocessor control of the large 3-5-litre paraffin reservoir, base molds
	warming oven, tissue holding tank, work stage and cold plate; user-friendly touch membrane pad with LED displays; lighted
	work stage; built-in forceps warmer; foot switch and/or push button-activated paraffin dispenser; and programmable, automatic

	timer controls.
	3 Technical Specifications
	3.1 Paraffin Reservoir capacity at least 3 liters
	3.2 Temperature ranges: Paraffin Reservoir: 50°C - 70°C ($\pm 2^\circ\text{C}$) Work Surface: 50°C - 70°C ($\pm 5^\circ\text{C}$)
	Tissue Holding Tank: 50°C - 70°C ($\pm 2^\circ\text{C}$) Cold Plate: - 5°C to - 15°C to ambient
	3.3 Refrigerant :Cold Plate, Cold Spot (peltier controlled)
	3.4 There should be a Membrane Keypad with LCD/LED to set and display operating parameters, current status, running
	time and alarm conditions for time and temperature.
	3.5 Resolution of temperature display: $\pm 1^\circ\text{C}$
	3.6 Unit should have self test on power up and should display error codes in case of malfunction for easy maintenance and
	troubleshooting. Error codes should be indicative of the System failure or a single module failure.
	3.7 Dimensions :(All dimensions variations $\pm 10\%$ rounded off to integral value.) Height of Work Surface: 6 cm or more
	Cold Plate: (at least to hold 80 to 100 cassettes)
	3.8 Receptacle for 6 forceps
	3.9 Pre heated forceps of two types (for small and medium size tissue)
	3.10 Drain Wax should remain in melted form
	4 System Configuration Accessories, spares and consumables
	Prices should be quoted for each separately:
	Standard size Cassettes – 1000 Nos.
	4.2 Large field Magnifying lens with cold light source
	4.3 Stainless Steel Moulds of different sizes (Depth 9 to 12 mm) – 80 Nos.
	4.4 Paraffin Scraper – 3 Nos.
	4.5 Halogen Bulb – 12 Nos.
	4.6 Fuse – 12 Nos.
	5 Environmental factors
	5.1 The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
	5.2 Thu unit shall be capable of operating in ambient temperature of 20-30 deg C and relative humidity of 80%.
	6 Power Supply
	6.1 Power input to be 220-240VAC, 50Hz fitted with Sudanese plug
	6.2 Reset table over current breaker shall be fitted for protection
	6.3 Suitable voltage corrector/stabilizer
	7 Standards and Safety
	7.1 Should be compliant to ISO 13485: Quality systems - Medical devices - Particular requirements for the application of ISO 9001
	applicable to manufacturers and service providers that perform their own design activities.
	7.2 Should be compliant with IEC 61010-1:covering safety requirements for electrical equipment for measurement control
	and laboratory use.
	7.3 Should be FDA or CE approved product
	7.4 Comprehensive training for lab staff and support services till familiarity with the system.
	8 Documentation
	8.1 User/Technical/Maintenance manuals to be supplied
	8.2 Certificate of calibration and inspection from factory.
	8.3 List of important spare parts and accessories with their part number and costing.
	8.4 Log book with instruction for daily , weekly, monthly and quarterly maintenance checklist.

Rotary Microtome

No.	Item Specifications
	Technical Specifications
	Semi-automated
	Micro and coarse advance movements in enclosed housing.
	Coarse advance mechanism with antiblocking system.
	Collision protection at max. extension of advance spindle.
	Section thickness adjustment from
	0,5 µm to 99 µm in defined steps. (0.5, 1.0, 2.0, 3.0, 4.0.....)
	Precise guide way and clamping de-vice for knife -holder
	Vertical stroke: 60 mm.
	Horizontal specimen advance: 28 mm
	Object orientation X/Y axes
	Z axes 360°.
	Retraction on return stroke.
	Specimen size: up to 50 x 50 mm or standard cas-sette size for cassette holder.
	Input power supply: 220/240 volt AC , 50Hz Schuko plug

Flamephotometer

No.	Item Specifications
	Technical Specifications
	For clinical use K ⁺ , Na ⁺
	Safe flame Compartment
	13 Psi air Compressor
	Work with Standard Butane gas
	3 digit -7 Gigment display
	Blank, Line and Coarse adjustment
	Flame Control Circuit
	Power 220-240v /50Hz

Semi automatic microtome

No.	Item Specifications
	Technical Specifications
	Total specimen advance : 35mm
	Cutting Stroke : 65mm
	Maximum advance speed : 2400 urn/sec.
	Section Thickness range : 0.5-100 urn
	Trim thickness range : 2-100 urn
	Retraction range : 0-125um
	Section Counter
	Distance display
	Knife angle position locator
	Specimen orientation light
	Cassette organizer tray
	Emergency stop button
	Knife locking pin to secure the blade holder to the fixed knife stage.
	Autoload facility to automatically reset the specimen head to a ready position.
	Automatic specimen advance with manual cutting.
	Reusable C-Profile Knife 160mm to 200 mm.
	Disposable Blade holder with blades.

Automatic tissue processor

No.	Item Specifications
1	Description of Function
	1.1 Tissues from the body taken for diagnosis of disease processes are processed by the tissue processor in the histology laboratory to process tissues prior to microtomy to produce microscopic slides that are viewed under the microscope by pathologists.
	2 Operational Requirements
	2.1 Latest Model Fully automatic system carousel type with minimum 12 stations (10 reagents and 2 wax baths).
	2.2 Computer controlled flow through tissue processor to automatically perform fixation, dehydration, clearing, and paraffin impregnation of tissue. Specimens should remain stationary during processing in a fully enclosed retort while processing reagents and molten paraffin are moved to and from the chamber in a programmed sequence.
	3 Technical Specifications
	3.1 Metal tissue baskets (2 nos.) each with a capacity of 80 -100 cassettes, both to be run simultaneously
	3.2 The tissue baskets should be such that they have a firm bottom and do not get stuck to the sides of the reagent stations.
	3.3 Reagent stations – Number of vessels: 10 (1.8- 2 litres each)
	3.4 Paraffin stations– Number: 2 (1.8- 2 litres each) – Temperature setting range: 45 - 70°C with cut out facility (Temperature should be mentioned)
	3.5 Computerized freely selectable and freely programmable Facility should be available Easy editing and changing of programmes should be possible even during a processing run Infiltration time for each station should be separately programmable. Program start delay should be selectable without time limit.
	3.6 In-built Vacuum function with fume control device.
	3.7 Safety device for protection for drying of specimen in case of power failure The buckets should go back inside the respective solution when power fails and not hang in mid air.
	3.8 LCD display panel with ergonomic control, fully protected control with full protection key board, audible alarm warning/ error message.
	3.9 Machine should be able to cater to short time / quick process
	3.10 Interrupting an automatic processing for reloading or removing cassettes before the end of a run should be possible
	3.11 Should be an open system capable of using standard cassettes from open markets.
	4 System Configuration Accessories, spares and consumables
	4.1 Quote pricing to upgradation to another basket with similar cassettes capacity.
	4.2 Basket Rotor – 01 Nos.
	4.3 Metal tissue basket- 04 Nos.
	4.4 Aluminum reagent vessels of 1.8-2 litre capacity each-10 nos.
	4.5 Beaker covers- 11 Nos.
	4.6 Wax baths complete with thermostat – 02 nos.
	5 Environmental factors
	5.1 The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
	5.2 The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%

	6 Power Supply
	6.1 Power input to be 220-240VAC, 50Hz fitted with Sudanese plug
	6.2 Suitable voltage corrector/stabilizer
	6.3 Reset table over current breaker shall be fitted for protection
	6.4 Suitable UPS with maintenance free batteries for minimum two-hour back-up should be supplied with the system.
	7 Standards and Safety
	7.1 Should be compliant to ISO 13485: Quality systems - Medical devices - Particular requirements for the application of ISO 9001
	of ISO 9001 applicable to manufacturers and service providers that perform their own design activities.
	7.2 Should be compliant with IEC 61010-1: covering safety requirements for electrical equipment for measurement control
	and laboratory use.
	7.3 Should be FDA or CE or ISI approved product
	7.4 Comprehensive training for lab staff and support services
	till familiarity with the system.
	8 Documentation
	8.1 Certificate of calibration and inspection from factory.
	8.2 Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of
	original catalogue.
	8.3 User/Technical/Maintenance manuals to be supplied
	8.4 Log book with instruction for daily , weekly, monthly and quarterly maintenance checklist.

Automatic Strainer

No.	Item Specifications
	Technical Specifications
	12 Stainless steel cuvettes, circularly arrange on one plane, size
	150 x 50 x 120 mm, volume 400 ml. Roofing of every single bath
	during the staining proc-ess
	Permanent vertical movement of the transport baskets during the staining process
	Dripping down time adjustable above each bath from 1 second
	up to 99 minutes therefore mini-mum mixing of staining solvents
	1 transport basket is included, its capacity of 50, 40 or 20 slides
	Input power supply: 220/240 volt AC , 50Hz Schuko plug

Floating Water Bath

No.	Item Specifications
1	Description of Function
	1.1 Required to thoroughly straighten sectioned paraffin embedded tissue specimens without creating wrinkles, folds or distortions.
	2 Operational Requirements
	2.1 Chamber completely encircled by sheathed heater for uniform, broad surface heating with insulated body to prevent heat loss
	and temperature fluctuation is required.
	3 Technical Specifications
	3.1 Rectangular / Circular with a capacity with in the range of 8 -10 liters
	3.2 Temperature range with in 30 – 60 0 C
	3.3 Temperature controller with increments of 1° C or less. LED Display of temperature.
	3. 4 Stainless steel / aluminum body. Inner surface should permit easy identification of tissue sections Outer surface should

	be powder coated
	3.5 Safety system to prevent over heating should be present
	3.7 Indicators for POWER ON and HEATER ON.
	3.8 Indicate if timers / alarms are present
	4 System Configuration Accessories, spares and consumables
	4.1 System as specified-
	5 Environmental factors
	5.1 The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
	5.2 Thu unit shall be capable of operating in ambient temperature of 20-30 deg C and relative humidity of 80%.
	6 Power Supply
	6.1 Power input to be 220-240VAC, 50Hz fitted with Sudanese plug
	6.2 Reset table over current breaker shall be fitted for protection
	7 Standards and Safety
	7.1 Should be compliant to ISO 13485: Quality systems - Medical devices - Particular requirements for the application of ISO 9001
	applicable to manufacturers and service providers that perform their own design activities.
	7.2 Should be compliant with IEC 61010-1:covering safety requirements for electrical equipment for measurement control
	and laboratory use.
	7.3 Should be FDA or CE or ISI approved product
	7.4 Comprehensive training for lab staff and support services till familiarity with the system.
	7.5 Three years warranty, 5 yrs comprehensive AMC should be available with service centers in close proximity.
	8 Documentation
	8.1 User/Technical/Maintenance manuals to be supplied
	8.2 Certificate of calibration and inspection from factory.
	8.3 List of important spare parts and accessories with their part number and costing.
	8.4 Log book with instruction for daily , weekly, monthly and quarterly maintenance checklist.

Sensitive Balance

No.	Item Specifications
	Technical Specifications
	Digital Control balance
	Provided with glass cage
	Capacity: 50-200 gm
	Readability: 0.01 mg
	Repeatability, (s): ± 0.01 mg
	Linearity: ± 0.02 mg
	Stabilization time: 5-10 seconds
	Operating temperature: 10-30°C
	Fully automatic Internal – calibration with built in instrument should be there
	Electronic –with Biult in Battery
	Input power supply: 220/240 volt AC , 50Hz Schuko plug
	Warranty should be for minimum two years

Blood samble rolling mixer

No.	Item Specifications
	Technical Specifications
	Rocking and rolling action for complete mixing

	Removable rollers to accommodate large bottles
	Suitable for continuous operation
	Number of Rollersapprox: 6 .
	Speedrpm approx: 33 .
	Amplitudeapprox: 16 mm .
	Roller Approx Size: 340x30 mm
	Input power supply: 220/240 volt AC , 50Hz Schuko plug

Plasma extractor

No.	Item Specifications
1	Description of Function
	Suitable for separating plasma from all types of blood collection bags.
	Operational Requirements
	Plasma Extractor (Plasma Separation Stand) complete system.
	Technical Specifications
	Automatic control system
	automatic separation of blood components from the blood bag.
	acrylic Pressure Plate
	Audiovisual alarm
	Compression plate designed to exert uniform pressure on the blood bag.
	Input power supply: 220 ± 20 % V AC , 50Hz
	Accessories, spares and consumables
	All standard accessories, consumables and parts required to operate the equipment, including all
	standard tools and cleaning and lubrication materials, to be included in the offer. Bidders must
	specify the quantity of every item included in their offer (including items not specified above).
	Operating Environment
	The system offered shall be designed to be stored and to operate normally under the conditions
	of the purchaser's country. The conditions include Climate, Temperature, Humidity, etc.
	Standards, Safety and Training
	Must submit ISO13485:2003/AC:2007 for Medical Devices AND
	CE (93/42 EEC Directives) or USFDA approved product certificate.
	User Training
	Must provide user training (including how to use and maintain the equipment).
	Warranty
	Comprehensive warranty for2 year after acceptance.
	Maintenance Service During Warranty Period
	During warranty period supplier must ensure corrective/breakdown maintenance whenever required.
	Installation and Commissioning
	Supplier must accomplish proper installation & commissioning of the equipment on site.
	Documentation
	User (Operating) manual in English
	Service (Technical / Maintenance) manual in English
	List of important spare parts and accessories with their part numbers and costing.
	Certificate of calibration and inspection from factory.

Ultra Plasma freezer (-20 °C)

No.	Item Specifications
1	Description of Function

	Description of Function
	1.1 Deep Freezers are required to preserve blood and blood products, vaccinations etc at specified temperature.
	2 Operational Requirements
	2.1 Microprocessor Vertical Freezer, at least double door with adjustable 4 to 6 shelves (frost free)
	2.2 Separate Chamber racks to be pulled out for easy handling
	2.3 Non-CFC refrigerant
	3 Technical Specifications
	3.1 Capacity within 250 to 300 L
	3.2 Digital display of set and actual temperature, with audiovisual alarm
	3.3 No condensation on storing material with automatic electric defrost
	3.4 Construction:
	Solid rust free cabinet to prevent corrosion and lockable castor wheels.
	3.5 Refrigeration System
	Heavy Duty refrigeration system, maintenance free, below -20 deg C (+ 10 C) cascaded connection with
	hermetically sealed refrigeration compressors and reliable refrigeration to minimize noise and vibration, air cooled
	with security lock to prevent unintentional switch off shall be supplied. It should have cooling time within hours at
	maximum ambient temperature of 33deg C.
	The equipment should be of continuous duty and frost free.
	3.6 Alarm
	It should also have audio visual Electronic Alarm System independent of power supply.
	3.7 Insulation High density polyurethane or equivalent Gaskets - Double seal silicon.
	4 System Configuration Accessories, spares and consumables
	4.1 As specified
	5 Environmental factors
	The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
	The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%
	6 Power Supply
	6.1 Power input to be 220-240VAC, 50Hz fitted with Sudanese plug
	6.2 Suitable Servo controlled Stabilizer/CVT
	6.3 Resettable over current breaker shall be fitted for protection
	7 Standards and Safety
	7.1 Should be FDA or CE or ISI approved product
	7.2 Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450
	7.3 Should be compliant to ISO 13485: Quality systems - Medical devices - Particular requirements for the application
	of ISO 9001
	applicable to manufacturers and service providers that perform their own design activities.
	8 Documentation
	8.1 User manual in English
	8.2 Service manual in English
	8.3 List of Equipments available for providing calibration and routine Preventive Maintenance Support. As per manufacturer
	documentation in service/technical manual.
	8.4 Certificate of calibration and inspection from factory.
	8.5 Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist.
	8.6 List of important spare parts and accessories with their part number and costing

Ultra Plasma freezer (-80 °C)

No.	Item Specifications
1	Description of Function
	Deep Freezers are required to preserve blood and blood products, vaccinations etc at specified temperature.
	Operational Requirements
	2.1 Internal Minimum Capacity 350 to 400 L net at least double door with adjustable At least 6 shelves
	2.2 Range up to -65C to -85C(Adjustable)
	2.3 Vertical Cabinet (upright model)
	Technical Specifications
	3.1 Construction:
	Solid rust free cabinet to prevent corrosion and lockable
	castor wheels. Inner surface should be stainless steel.
	3.2 CONTROL SYSTEM
	Micro-processor based temperature controller with digital temperature display LED/LCD with seven days graphic
	temperature recorder with rechargeable battery back up including charger maintenance free and insensitive to
	vibration. Details of battery and battery charger shall be indicated.
	3.3 Refrigeration System
	Heavy Duty refrigeration system, maintenance free, below -850C (+ 10 C) with hermetically sealed dual
	compressors, noise free and vibration free, air cooled with security lock to prevent unintentional switch off shall
	be supplied. It should have maximum cooling time of 5 hours at maximum ambient temperature of 330C. The
	equipment should be of continuous duty.
	3.4 Alarm
	It should also have audio visual Electronic Alarm System independent of power supply.
	3.5 Insulation
	High density polyurethane or equivalent Gaskets - Double seal silicon.
	3.6 Door heating system for easy opening of door
	4 System Configuration Accessories, spares and consumables
	4.1 Refrigerator -01
	5 Environmental factors
	The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
	The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%
	6 Power Supply
	6.1Power input to be 220-240VAC, , 50Hz,/440 V 3 Phase as appropriate fitted with Sudanese plug
	6.2 Suitable Servo controlled Stabilizer/CVT
	6.3 Resettable over current breaker shall be fitted for protection
	7 Standards and Safety
	7.1 Should be FDA or CE or ISI approved product
	7.2 Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450
	7.3 Should be compliant to ISO 13485: Quality systems - Medical devices - Particular requirements for the application
	of ISO 9001
	applicable to manufacturers and service providers that perform their own design activities.
	8 Documentation
	8.1 User manual in English

	8.2 Service manual in English
	8.3 List of Equipments available for providing calibration and routine Preventive Maintenance Support. As per manufacturer documentation in service/technical manual.
	8.4 Certificate of calibration and inspection from factory.
	8.5 Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist.

Donor Chair

No.	Item Specifications
1	Description of Function
	Blood Donor Couch is a completely automatic enveloping, variable tilt chair and specially designed to make blood withdrawals easier, safe and functional, and also for other diagnostic and therapeutic areas
	2. Operational Requirements
	1) Provides a comfortable position for the donor.
	2) Variable positioning for either arm with Comfortably wide armrests.
	3) Armrests have swinging out as well as up and down moving facility.
	4) Reclining and upright body positions with a smooth shifting to any position.
	5) Both sides have supporting brackets.
	6) Drawers provided for the upkeep of equipment & consumables.
	7) If a vasovagal attack occurs the Donor's head needs to be lowered immediately and his legs lifted above his heart level so that blood can flow back to the brain and other vital organs. This facility should be available
	3. Technical Specifications
	3.1 Comfortable chair type with soft padding for cushioning and rexin cover.
	3.2 Seat, back rest and leg rest size designed for donor comfort. It should have step less electric remote controlled height adjustment.
	3.3 Adjustable arm rest for donor's comfort and phlebotomist friendly
	3.4 Easily tilted to head low position, electrically operated
	3.5 Comfortable working level for the operator. Lifting capacity - Approx 200 kg.
	3.6 4 Lockable castors for easy mobility
	3.7 Storage Drawers for storing consumables & Blood Collection Monitors
	3.8 UP/DOWN control
	3.9 OPTIONS:
	(i). A paper roll holder can be fixed on the upper part of the chair.
	(ii). Melodious musical Headphone can be integrated for patient relaxation while blood donation is in progress.
	(iii). Preferable to have inbuilt trays & stands for keeping all blood collection accessories.
	3.10 Should have interface for blood collection monitor (optional)
	4. System Configuration Accessories, spares and consumables
	4.1 Donor Couch -01
	4.2 Dust Cover -01
	4.3 Power cable -01
	4.4 Arm Rests (pair) -01 pair
	4.5 Remote control -01
	5. Environmental factors
	5.1 The unit shall be capable of operating continuously in ambient temperature of 10 – 40C and relative humidity of 15-90%
	5.2 The unit shall be capable of being stored continuously in ambient temperature of 0 - 40 C and relative humidity of 15-90%
	5.3 Shall meet IEC-60601-1-2: 2001 (Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility.
	6. Power Supply

	6.1 Power input: 220-240V/ 50 Hz AC Single phase or 380-400V AC 50 Hz Three phase fitted with appropriate Sudanese plugs and sockets.
	6.2 Resettable over current breaker shall be fitted for protection
	6.3 Suitable Servo controlled Stabilizer/CVT
	7. Standards and Safety
	7.1 Should be FDA or CE approved product
	7.2 Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450
	7.3 Manufacturer should have ISO certification for quality standards.
	7.4 All electrical actuators and mechanisms should be housed inside the structure making the product safer
	7.5 Comprehensive warranty for 2 years and 5 years AMC after warranty
	8. Documentation
	8.1 User manual in English
	8.2 Service manual in English
	8.3 List of important spare parts and accessories with their part number and costing.
	8.4 Certificate of Calibration and inspection from the factory
	8.5 Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist.

Blood Collection Monitor

No.	Item Specifications
	Technical Specifications
	Should have gentle mixing procedure and control of collection time. .Adjustable mixing cycles with max 32 cycles/min
	Should have battery back up of minimum 8 hrs with battery status displayed at the start of procedure
	Should have automatic tube detection system
	Should have automatic calibration procedure with the help of software
	Should have handy transportation shoulder carrying bag
	Should be compatible with Computer & facility to store collection records within, with the help of inbuilt memory
	Should have automatic counter balancing at start of procedure.
	Should have manual and motorized working tube clamp.
	Should be suitable for all type of blood bag in the market.
	Measure gross or net volume with the best accuracy & max deviation level of ± 2 ml
	Automatic check on Blood flow and collection with buzzer alarm with notification of flow incidents & flow rate accuracy of ± 5 ml/min
	Continues display of collected volume, flow and time during collection.
	Pre-programmed standard volumes of 350, 400,450,500 ml
	Adjustable limit for low and high flow and time alarm. There should be a buzzer alarm incase blood flow rate falls below 20 ml/min and above 180 ml/min
	Repetitive notification of completed collection very minute including gentle mixing to avoid coagulation.
	Should be CE Marked and should have quality standards like ISO/USA FDA approval.
	Should comply with PTC (self recovery overload protection)

Benchtop tube sealer

No.	Item Specifications
1	Description of Function
	1.1 Blood Bag Tube Sealer is a compact equipment to seal the Blood Bag pilot tube by radio frequency sealing system.
	2 Operational Requirements

	2.1 The system should be heavy duty and be able to seal the blood bag etc quickly and effectively.
	2.2 Should be simple to handle
	2.3 System should gently seal the tubing with no hemolysis.
	3 Technical Specifications
	3.1 Should be a heavy duty tube-sealer capable of sealing tubes of various manufacturers of blood bag.
	3.2 Should be for bench-top use.
	3.3 The sealing time should be adjustable between 0.5-5 seconds
	3.4 Sealing triggering should be automatic
	3.5 Should also have extended portable hand unit. Sealing hand should be with coaxial cable of 1.5 - 2.0 meter.
	3.6 Should have indication lamps (LED or any other) for “Sealing Process” on handle as well as main unit.
	3.7 No warm-up time should be required.
	3.8 Should ensure easy separation of tube segments after the sealing.
	3.9 System should run on both mains and battery (more than 10 hrs. back up and charger).
	3.10 Should be lightweight not more than 6 Kg.
	3.11 Detection of wet tube, leakage & sealing defect. Alarm in case of seal not complete.
	4 System Configuration Accessories, spares and consumables
	4.1 Tube Sealer with Accessories - 01
	5. Environmental factors
	5.1 The unit shall be capable of operating continuously in ambient temperature of 10 – 400 C and relative humidity of 15-90%
	5.2 The unit shall be capable of being stored continuously in ambient temperature of 0 - 40 C and relative humidity of 15-90%
	5.3 Shall meet IEC-60601-1-2: 2001 (Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility.
	6. Power Supply
	6.1 Power input : 220-240V/ 50 Hz AC fitted with appropriate Sudanese plugs and sockets.
	7 Documentation
	7.1 User manual in English
	7.2 Service manual in English
	7.3 List of important spares and accessories with their part number and costing.

Portable tube Sealer

No.	Item Specifications
	Technical Specifications
	Should be portable, light weight (Hand unit & Battery weight not exceeding 1.5kg) .
	Should be able to do minimum 500.
	Quality seals with one fully charged battery
	Battery should have visual indication, showing charge status of battery at any given time
	Should have visual indication on sealing handle as well as battery, when the sealing process is going on
	Should be able to seal different types & sizes of tubes of upto 5mm outer diameter
	Should have sophisticated sensing system, to adapt to the sealing time depending upon the thickness & quality of PVC tube
	Should have a carrying case for battery for ease of operations during outdoor collections
	Should work on RF with output of 70W max. 50.Ω./40.680 MHz
	Should have quality standards like CE, FDA, ISO

Auto ELISA Machine

No.	Item Specifications
1	Description of Function
	ELISA Reader is required to Read the Colour Density known as OD (Optical Density) in ELISA (Enzyme Linked Immuno-Sorbent Assay.)Plates.
	Operational Requirements
	2.1 ELISA Reader with Washer is required.
	Technical Specifications
	3.1 OPTICAL SYSTEM
	Digital light control
	8 measurement channels including 1 reference.
	Single and dual wavelength measurement with facility for kinetic measurement
	8 s maximum measurement time for single and dual wavelength and 5 s(+/-1Sec.) for kinetic
	Measurement Range 400-700nm
	Indication Range 0-2.999 abs
	Accuracy Plus/Minus 2% or Plus/Minus 0.005 abs
	Resolution 0.001 abs
	Inbuilt Filters: Narrow band interference
	Should have the following filters – 405, 450, 492(+/-2nm), 540, 620 (+/-10nm) and 690 nm
	Should measure end point, curves and kinetic.
	3.2 SOFTWARE:
	Storage of immediately preceding measurement At least 15 user programmable tests permanently stored Time programmable between each measurement. Agitation programmable before each reading Bi-directional printer interface.
	Data memory not less than 300 plates/curves
	Built in Windows based software programming software.
	3.3 MEASUREMENT MODES
	Plate shaking mode for sample mixing selectable speed and time)
	Flexible blank mode setting
	Matrix Modes: Matrix -/x/t, Matrix-/0-0 (Range)
	Matrix-/f/(Floating cut off)
	Difference Mode: Absorbance of each well in even numbered subtracted from those of odd numbered columns
	Curve fit Modes: LIN/LIN.LIN/LOG.LOG/LOG or auto curve transformation with ability to add the standard curve; 8 to 12 way string orientation or kinetic modes
	Table of optical densities, Delta DD, Graphic, Reaction rate/V-Max
	3.4 Adjustable for different micro plate geometrics
	3.5 Halogen Lamp 20 - 40 W or better.
	3.6 16 digit alphanumeric fluorescent display
	3.7 Membrane keyboard.
	3.8 Technical Specifications for washer
	3.8.1 Auto strip washer for 96 well plates / strips
	3.8.2 1 x 8 strips/ 1x12 strips.
	3.8.3 Dispensable wash volume 50 - 300 µl.
	3.8.4 Residual wash Volume -<0.5µl
	3.8.5 Aerosol Shield for user safety.
	3.8.6 In built shaking facility
	4 System Configuration Accessories, spares and consumables
	4.1 System as specified above.
	4.2 Halogen Lamps: 2
	4.3 Printer inbuilt or external to be supplied along with 10 Rolls/Z Fold
	4.4 Dust cover.

	4.5 8-12 channel manifold, all tubing sets, wash, rinse and waste bottles
	5 Environmental factors
	5.1 The unit shall be capable of being stored continuously in ambient temperature of 0 -50 deg C and relative humidity of 15-90%
	5.2 The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%
	6 Power Supply
	6.1 Power input to be 220-240VAC, 50Hz fitted with Sudanese plug
	6.2 Resettable over current breaker shall be fitted for protection
	6.3 Suitable voltage corrector/stabilizer
	6.4 Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.
	7 Standards and Safety
	7.1 Comprehensive training for lab staff and support services till familiarity with the system.
	7.2 Should be compliant to ISO 13485: Quality systems - Medical devices - Particular requirements for the application of ISO 9001 applicable to manufacturers and service providers that perform their own design activities.
	7.3 Should be FDA or CE or ISI approved product
	8 Documentation
	8.1 User/Technical/Maintenance manuals to be supplied
	8.2 Certificate of calibration and inspection from factory.
	8.3 List of Equipments available for providing calibration and routine maintenance support as per manufacturer documentation in service / technical manual.
	8.4 List of important spare parts and accessories with their part number and costing.
	8.5 Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist.
	The job descriptio