LOT 5 – LABORATORY

S/No.	LOT No.	EXPECTED EQUIPMENT	QTY	Estimated Units Price	Estimated Total Price
SPECIMEN PREPARATION					
1.		Phlebotomy			
2.		Computing-bar coding system etc.	2		
CLINICAL CHEMISTRY AND IMMUNOLOGY					
3.	5-1	Integrated Chemistry-Immunology platforms and related workflows (Toxicology/TDM/Endocrinology/Proteomics)	0		
4.	5-2	Liquid Chromatography-Mass Spectroscopy+ Atomic Absorptiometry and related workflows	0		
5.	5-3	Full Automated Biochemistry Analyzer	1		
6.	5-4	Immunochemistry Analyzer	1		
7.	5-5	ISE Electrolyte Analyzer	1		
8.	5-6	Protein Electrophoretic Machine	1		
9.	5-7	Centrifuges	1		
10.	5-8	Refrigerator	1		
11.	5-9	Water Distiller/Deionizer	1		
12.	5-10	Cold Room	1		
13.	5-11	Urine analysis – readers and strips	2		
14.	5-12	Clinical Microscope	1		
TRANSPLANTATION AND GENETICS					
15.	5-13	Multiplex Protein Assays Analyzer (with software)	1		
16.	5-14	Centrifuge (non-refrigerated); (and rotors)	1		
17.	5-15	Refrigerated microcentrifuge	1		
18.	5-16	Thermal Cycler Complete with UPS	1		
19.		Photo gel system basic with filter for Thermocycler	1		
20.		PCR cabinet/clean bench workstation1 for Thermocycler	1		

S/No.	LOT No.	EXPECTED EQUIPMENT	QTY	Estimated Units Price	Estimated Total Price
21.		PCR plate holders for Thermocycler	1		
22.		PCR storage boxes for Thermocycler	600		
23.		PCR cooler	1		
24.	5-17	Plate shaker	1		
25.	5-18	Vortex mixer	1		
26.	5-19	DNA quantification fluorometer	1		
27.	5-20	Inverted microscope	1		
28.	5-21	Water purification system	1		
29.	5-22	Refrigerator (2-8°C)	1		
30.	5-23	Freezer (-20°C)	1		
31.	5-24	Ultra-low freezer (-80°C) and/or liquid nitrogen tank	0		
32.	5-25	DNA Analyzer Equipment	0		
33.	5-28	Flow Cytometer (> 4 colour)	0		
MICROBIOLOGY AND PARASITOLOGY					
34.	5-29	Bacteriology Workflow – Aerobic and Anaerobic Biosafety Cabinet	1		
35.	5-31	Fungal Culture Systems and Workflow	0		
36.	5-32	aerobic/anaerobic bacterial and fungal identification system	0		
37.	5-33	Parasitology – Stool Concentration, Urine Parasitology Workflow Systems	0		
38.	5-37	Laminar Flow Hood	1		
39.	5-38	Fume Chamber	1		
40.	5-39	Water Jacketed/CO2 Anaerobic Incubator	1		
41.	5-40	Aerobic Incubators	1		
42.	5-41	Autoclave	1		
43.	5-42	Hot-air Oven	1		
44.	5-43	Analytical Balance	1		
45.	5-44	Top Pan Balance	1		

S/No.	LOT No.	EXPECTED EQUIPMENT	QTY	Estimated Units Price	Estimated Total Price
46.	5-45	Clinical Microscope	2		
47.	5-46	Clinical Microscope with darkfield application, polarization	1		
48.	5-47	Fluorescence Microscope	0		
49.	5-48	Disc Dispenser	1		
50.	5-49	Colony Counter	1		
51.	5-50	Micro Pipettes - Single - channel	5		
52.	5-51	Micro Pipettes - Multi channels	5		
53.	5-52	Antibiotic Zone Reader	0		
54.	5-53	Dry Bath	1		
55.	5-54	Hot Plate Magnetic Stirrer	1		
56.	5-55	Bactec Machine	0		
57.	5-56	Refrigerator (2 to 8 Deg)	1		
58.	5-57	Light Compound Microscope with compound application	1		
59.	5-58	Stereo/ Dissecting Microscope	1		
60.	5-59	Refrigerator	1		
61.	5-60	Formal-Ether stool concentration workflows	1		
HEMATOLOGY					
62.	5-60	Coultergram	1		
63.	5-61	Automated Coagulometer	1		
64.	5-62	Automated ESR	1		
65.	5-64	Refrigerator, Blood bank	1		
66.	5-66	Clinical Microscope	1		
67.	5-67	Platelet Agitator	1		
68.	5-68	Cryo Bath	1		
69.	5-69	Water bath	1		
70.	5-71	Blood Donor Units & Couches	5		

S/No.	LOT No.	EXPECTED EQUIPMENT	QTY	Estimated Units Price	Estimated Total Price
71.	5-72	Blood Components Separation Equipment	1		
72.	5-73	Micro Pipettes - single -channel	5		
73.	5-74	Micro Pipettes - Multi -channels	5		
74.	5-75	Automated immunohaematology platforms-screening, grouping	1		
75.	5-76	Leukoreduction	0		
76.	5-77	Irradiation	0		
77.	5-78	Apheresis- collection	0		
78.	5-80	Apheresis Section – Therapeutic Plasmapharesis	1		
ANATOMIC PATHOLOGY					
79.	5-81	Multi-head Microscopes for reporting (10 header)	1		
80.	5-82	Grossing stations, with ergonomic capacity (eg hydraulics) and integrated computing, photography	1		
81.	5-83	Electron microscopy and related workflows	0		
82.	5-84	Automated Formalin Dispensing System	1		
83.	5-85	Cassette Printer	1		
84.	5-87	Cryostat Microtome, and related frozen section workflows	2		
85.	5-88	Lean High Throughput Tissue Processor	1		
86.	5-89	Parrafin Wax Dispenser and Embedding Station	1		
87.		Microtome	1		
88.		Slide Printer	1		
89.		Floatation Bath	1		
90.		Stretching Table	1		
91.		Intergratesd Automated Stainer for H/E and Special Stains (Histochemistry), with automated cover slipper	1		
92.		Cryoembedding System for Frozen Section	1		

S/No.	LOT No.	EXPECTED EQUIPMENT	QTY	Estimated Units Price	Estimated Total Price
93.		Cryostat Microtome	1		
94.		Manual Immunohistochemistry, staining bowel, 12 set	2		
		Humidifying Chamber	2		
95.		Slide Rack	4		
96.		Adjustable Pipettes (10-100 microliters,pipette tips)	3		
97.		User refillable Bottles	10		
98.		Starter pack for renal immunofluorescence (IgA, IgG, Ig M, kappa, lambda, C3, C1q, C4d, Fibrin, Albumin)	1		
99.		Consumables: slide trays, slides, cover slips starter pack	20		
100.	5-93	Clinical Microscopes (light and polarized microscopy functions)	22		
101.	5-95	Fluorescent Microscopy, integrated research microscope with multi-headed scopes (x5viewers)	1		
102.	5-97	Whole Slide Scanner with fluorescent, brightfield, darkfield and polarized microscopy, with Capacity for multiplex and automated analysis	1		
CYTOLOGY LABORATORY					
103.	5-99	Centrifuge	1		
104.	5-100	Refrigerator	1		
105.	5-101	Staining workflow systems (Pap, Romanowsky)	1		
106.	5-102	Microscope (clinical, light with polarization for cast analysis)	3		
BIOREPOSITORY					
107.	5-105	Liquid Nitrogen Tanks (-256)	1		
108.		Storage for slides and formalin fixed paraffin embedded tissue blocks (1000 capacity)	1		
109.		Cryoracks	24		

S/No.	LOT No.	EXPECTED EQUIPMENT	QTY	Estimated Units Price	Estimated Total Price
110.		Cryogenic Gloves	3		
111.	5-106	Information Systems for Managing Biorepository	1		

LOT 5 – DIAGNOSTIC LABORATORIES

LOT 5-1 Integrated Chemistry Immunology Platforms with related workflows

Item Code No.	Department	Section	Item Description
LOT 5-1	Diagnostic Laboratories	Clinical Chemistry and Immunology	Integrated Chemistry Immunology Platforms with related workflows

1. General Description

Integrated Chemistry-Immunology platforms and related workflows (Toxicology/TDM/Endocrinology/Proteomics)

Track-based Automation Technical Specifications

The track-based automation should be a high throughput automated sample handling system which processes Clinical Chemistry & Immunochemistry sample tubes on-line. The track-based automation connected to the Laboratory Information System (LIS) of the Hospital, should perform sample login, positive identification of sample barcodes, centrifugation, de capping, aliquoting, presentation of samples for connected instruments (testing of samples in Clinical Chemistry & Immunochemistry systems), recapping and output of samples, storing of samples in ambient/refrigerated storage modules and facility to automatically retrieve, Decap and rerun or reflex samples followed by recapping and storage.

The track-based automation should have a at least four lane traffic with the following pre-analytical modules:

- Inlet Module
- Centrifuge (refrigerated) module with at-least 2 centrifuges connected to the track.
- Decapper module
- Aliquoter module with Level Detector, Labeler and (Aliquoter optional)
- Analyzer Connectivity with options to connect at least 2 modules each of Clinical Chemistry & Immunochemistry systems.
- Recapper
- Refrigerated or Ambient Storage modules
- Outlets
- Main lane, Error lane, by-pass lane & re-run lane.

The Pre-analytical track system should be controlled by an efficient Line controller software for intelligent sample management to eliminate any chances of bottlenecks and delay in TAT.

PRE-ANALYTICAL MODULES

Dynamic Inlet:

- Should have a capacity to handle a test throughput of minimum 1200 tubes/hour
- Should support STAT/Priority sample handling.
- Should support various blood collection sample tubes.

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LOT 5-1	Diagnostic Laboratories	Clinical Chemistry and Immunology	Integrated Chemistry Immunology Platforms with related workflows

- Should have the ability to remap samples to allow the re-introduction of new or previously processed sample tubes for routing to storage.
- Should have ability to allow samples that are pre-spun to bypass the centrifuge module(s) or ability to bypass any step.

Centrifuge /Temperature Controlled Centrifuge:

- The track should be able to support at least 2 modules of Centrifuges.
- Each centrifuge should be configurable for various blood collection tubes
- Centrifuge speed, time and batching of samples should be able to be set independently for each centrifuge (if more than one is present on the track)
- Should support user configured variable time, speed and batching of samples.

De-capper:

- Should be able to De-cap sample tubes with rubber or plastic lift off style caps
- Should be able to detect errors during de-capping process
- Should support various blood collection tubes simultaneously.
- Should have a minimum throughput of 1200 tubes/hr

Aliquoter:

- Should have Automatic liquid level detection and clot or obstruction detection mechanism
- Should be flexible to facilitate user definable parameters for test volume, dead volume, gel height, aliquot priority, storage volume, aliquot label format.
- Should support up to 3 aliquots per primary sample.
- Aliquot creation should be based on tests assigned to rack/subsection, attached analyzers and system's share primary tube definition.
- The system should be able to track residual volume of samples for storage and retest.
- Should allow bypass of Aliquoter for samples that do not require aliquot creation.
- Should be able to identify insufficient volume in samples.

Recapper:

Main functionality of the Re-capper module should be:

- Recap the Uncapped tubes destined for storage and Outlets (depending on placement relative to the Re-capper)
- Recap primary and aliquot tubes
- Supports various blood collection tubes simultaneously.

Outlet Module:

Outlet module is meant to put analyzed samples from the track automation out for the user. The outlet module should have following features:

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LOT 5-1	Diagnostic Laboratories	Clinical Chemistry and Immunology	Integrated Chemistry Immunology Platforms with related workflows

- Rack mapping for sample tube off-line processing
- Support various blood collection tubes simultaneously
- A throughput of minimum 600 tubes/hr.

Software features:
The software supporting the track-based automation should have following features/support following functions:

- Automatic balancing of workload for specified instruments based on number of sample tubes, reagent/calibration status, sample programming information and dynamic instrument test menu and status.
- Automatic handling of sample and non-sample-based errors.
- Automatic communication of sample test status to properly handle storage or re- run of the sample.
- Automatic retrieval of samples for re-run, reflex, and add-on testing
- Automatic validation of test results with Delta checks, criteria for auto validation user definable
- Automatic recognition of errors in any of the modules connected and notification to user.
- Provides the alerts to the user for sample processing errors.
- Allows user to search sample information via Sample or Sample History
- Provides multiple user login rights for the different authorization user.
- Provides system status tracking.
- Provides statistics such as (Inlet to Storage TAT, Dwell time, Analyzer load balance)
- Sample tube is routed based on the test requests and best fit sort destinations.
- Manual rerun – request for a sample tube previously ran on the connected analyzers, sample is recalled from the Storage and routed to the Pending Rack.
- Automatic Rerun – request for a sample tube previously ran on the connected analyzers, sample is recalled from the Storage and routed to a connected analyzer.
- Sample Processing Capabilities including Sample Identification; Aliquot Creation; Test Scheduling
- Automatically routes samples for testing based on tests ordered, test menu of the available connected analyzers, load balancing across analyzers with common test menus to optimize throughput.
- STAT sample handling by priority in both pre-analytical and analytical modules
- Definable Reference ranges, critical ranges for tests

Data Input Devices:
104-key keyboard (in English), mouse, LIS, CD, touch screen

Data Output Devices:

Item Code No.	Department	Section	Item Description
LOT 5-1	Diagnostic Laboratories	Clinical Chemistry and Immunology	Integrated Chemistry Immunology Platforms with related workflows

External Printer compatible with LIS.
System Setup Features: the following are configurable by laboratory preference
Track: programmable
Barcode Type and Sample ID Length
Rack Type and Location

Sample Programming:

- Samples may be programmed via connection with a Host.
- Sample Identification: by Sample ID
- Sample Priority: STAT/Routine
- Sample Type: Serum, plasma, whole blood, urine, body fluids and others like dialysate fluid etc.
- Sample ID Storage: Up to 3,000,000 Sample IDs & their programs Sample
- Description Options: Patient name, Patient demographics, Host reception date/time and number

Sample Tracking:

- This feature allows automatic sample tracking including sample arrival (date/time recording), sample location while on the automation line and time of sample removal from the system.

ANALYTICAL MODULES

All Analytical modules should be automation ready (to be able to connect to Track based automation); multiple modules of each type should be able to be connected to track.

Clinical Chemistry system:

The system (Instrument) should have the following features:

System:
Two fully automated, open, random access, floor model biochemistry analyzers with a minimum throughput of 1000 tests/hour/analyser (800 tests photometry/hr, 200 ISE /hr/analyser)

Sample handling:

- Must facilitate continuous loading of samples through sample racks (minimum capacity to handle 100 samples at a time)
- should have intermix sample containers
- Must be able to handle bar coded samples
- Must be able to handle various sample types including serum, plasma, body fluids, urine.

Item Code No.	Department	Section	Item Description
LOT 5-1	Diagnostic Laboratories	Clinical Chemistry and Immunology	Integrated Chemistry Immunology Platforms with related workflows

- Must have facility of sample probe obstruction detection & correction.
- Must have clot detection facility to detect sample clots & provide error free results.
- Must be able to detect lipemic, icteric, hemolyzed samples (serum indices) which can be configurable assay specific.
- Must have level sensing capability for probes with alarms on short samples
- Must be capable of handling STAT

Reagent's handling:

- Must accommodate a minimum of 100 reagents on board
- Menu of > 100 assays must be available (including general chemistry, specific proteins, TDMs, DAT & ISE)
- Must have reagent area cooling to offer long on-board stability of reagents.
- Must have on-board data storage of more than of 100 parameters (assays)
- Must accommodate User Defined Reagents (third party reagents) defined at any given time (at least 10 open channels)
- Must perform Real Time Reagent Tracking Management with data of - number of tests (utilized for calibration, QC, patient results & repeat), calibration expiry date, reagent lot expiry date & reagent lot numbers to be available.
- Must facilitate inventory management by providing average consumption of reagents in specific time duration

Reaction System:

- Must have disposable reaction cuvettes
- Must have efficient on-board laundry to wash and clean the cuvettes.

Photometry & detection systems:

- Must have a multi-wavelength, diffraction grating spectrophotometer.
- Must have at least 10 different wavelengths between 340 – 800 nm
- Must be able to handle Colorimetry, Potentiometry, turbidimetry, & homogenous EIA (Electro Immuno Assays)

Quality control:

- Must have on board quality control program (for internal QC) with west guard rules, LJ plots & twin plots.
- Must facilitate user defined 'Auto QC' option (ability to order QC run automatically at pre-defined time intervals / test intervals) which must be assay dependent.
- Must be able to calculate moving average and data presented in graphical representation.

Software features:

Item Code No.	Department	Section	Item Description
LOT 5-1	Diagnostic Laboratories	Clinical Chemistry and Immunology	Integrated Chemistry Immunology Platforms with related workflows

- Must have reagent inventory management with alerts on short reagents
- Must facilitate bi-directional interfacing capability.
- May support remote monitoring & e-service facility.
- Software must be user friendly with color coded alerts and messages.
- Must have online user manual with instant help for the user.
- Must support automated reflex testing (user defined – for specific assays).
- Must be able to perform user defined auto-repeat (with dilutions) options for '> panic range' samples.
- Must have data storage of minimum of up to 30,000 patient files.
- Must have auto-back-up of patient filesShould have automatic validation of delta checks

IMMUNOASSAY SYSTEM:

System:

- Two fully automated, random access, floor model Electro-Chemiluminescence Immunoassay analyzers with a minimum throughput of 200tests/hour.

Sample handling:

- Should be Automation compatible to link to track based automation.
- Must be able to handle an intermix of sample containers and sample tubes sizes.
- Must be able to handlebar coded samples.
- Must be able to handle various sample types including serum, plasma & body fluids.
- Must have level sensing capability for probes with alarms on short samples.

Reagents handling:

- Must accommodate a minimum of 30 assays on board to be simultaneously assayed on a sample
- Must have reagent area cooling to offer long on-board stability of reagents
- Must perform Real Time Reagent Tracking Management
- Must be able to load reagents even while the instrument is processing samples

Reaction System:

- Must work on the principle of Electro Chemiluminescence Immunoassay (ECLIA) technology

Quality control:

- Must have on board quality control program (for internal QC) with west guard rules, LJ plots & twin plots
- Must facilitate user defined 'Auto QC' option (ability to order QC run automatically at pre-defined time intervals / test intervals) which must be assay dependent.

Software features:

- Must facilitate bi-directional interfacing capability

Item Code No.	Department	Section	Item Description
LOT 5-1	Diagnostic Laboratories	Clinical Chemistry and Immunology	Integrated Chemistry Immunology Platforms with related workflows

- May support remote monitoring & e-service facility
- Software must be user friendly with color coded alerts and messages
- Must support automated reflex testing (user defined – for specific assays)
- Must be able to perform user defined auto-repeat of tests

R.O. water system:

- Suitable R.O. water system to be provided and its installation & daily maintenance to be taken care of by the vendor Should be attached with a service contract

UPS:

- Suitable UPS for the pre-analytical and analytical systems to be provided and its installation & maintenance to be taken care of by the vendor
- All equipment operating accessories must be provided such as printers, among others
- should have a starter pack for initial testing and running

LOT 5-2 Liquid Chromatography-Mass Spectroscopy + Atomic Absorptiometry and related Workflows

Item Code No.	Department	Section	Item Description
LOT 5-2	Diagnostic Laboratories	Clinical Chemistry and Immunology	Liquid Chromatography-Mass Spectroscopy + Atomic Absorptiometry and related Workflows

1. General Description

Specification	Requirement
LC-MSMS (Triple Quadrupole)	A Bench Top High Sensitive Triple/Tandem Quadrupole LCMS/MS System with facility to either use as standalone or connect to a Fast Liquid Chromatography system using lesser than 2 µm particle size columns for high sensitivity for both qualitative and quantitative analysis
Mass Range	10 to 2000 amu or better
Scan speed	Should have the scan speed of 17,000 amu/sec or better in QQQ mode
Mass stability	Less than 0.1 Da over a 24hour period
Interface	Dual/equivalent orthogonal or off axis source or any other equally efficient technology capable of avoiding interferences from solvents and other extraneous matter, handling large batches of complex sample matrix over a long period of time without performance degradation.

Item Code No.	Department	Section	Item Description
LOT 5-2	Diagnostic Laboratories	Clinical Chemistry and Immunology	Liquid Chromatography-Mass Spectroscopy + Atomic Absorptiometry and related Workflows
Ionization source	• Combined/dedicated or equivalent ESI and APCI sources to be provided, with facility of interchanging easily by the user, and auto-detection of installed source by the instrument and software. The ionization must be done both in a positive and negative modes. • The combined/dedicated or equivalent ionization (ESI & APCI) source must operate along with reference spray to facilitate automated accurate mass measurements within single LCMS experiment. The instrument should be capable of internal reference mass correction for MS and MS/MS operation without losing sensitivity • Switching between ESI and APCI should be ≤ 20 ms • The source should be easily removable from the system to facilitate user cleaning without venting the vacuum, with automatic standby of system while the source / probe is being removed • The source shall have a flow rate compatibility from 50 µL/min to 2000 µL/min, without flow splitting in both ESI and APCI modes • Desolvation temperature for sources should be 350° C or better • All source parameters to be adjustable through software.		
Source cleaning	• The cleaning of the source should be done without venting the system and facility to Vacuum Interlock should be provided. The Vacuum must remain intact during the cleaning, Source interchange or Servicing of the system. Vendors must assure the same in writing.		
Infusion Device	• Infusion device must be integral to the instrument for direct sample introduction and must be controllable from the instrument software.		
Vacuum system	• A robust high efficiency Oil less vacuum system with minimum maintenance and utility with low noise level and automatic vacuum lock system.		
Triple Quadrupole	• Quadrupoles having high standards of mechanical tolerances and minimum coefficient of • Thermal expansion to ensure highest mass stability with Prealigned pre filters to ensure excellent focusing of Ions into all the Quadrupoles for high sensitivity and resolution in both Q1 and Q3.		
Instrument Detection limit	• Should be 0.5gf or less (Proof of Statement must be provided)		
Mass Resolution	• Must be automatically adjusted to desired resolution • (0.50 Da, 0.75 Da or 1.00 Da FWHM)		
Sensitivity	• MRM ESI +ve 1pg On column reserpine should give chromatographic S /N greater than • 500,000:1 without smoothening MRM transition 609>195 at unit resolution (Proof of Statement must be provided)		

Item Code No.	Department	Section	Item Description
LOT 5-2	Diagnostic Laboratories	Clinical Chemistry and Immunology	Liquid Chromatography-Mass Spectroscopy + Atomic Absorptiometry and related Workflows
	• MRM ESI-ve 1pg On column chloramphenicol should give chromatographic S /N greater than 500,000:1 without smoothening MRM transition 321>152 at unit resolution (Proof of Statement must be provided) • Documentary evidence to be submitted along with quotation. For ten injections, %RSD should be <5%. Chromatograms to be provided, with details of mobile phase, column and injection volume. Statistical treatment used to determine S/N ratio is to be specified along with raw data.		
Collision cell	• Specially designed collision cell to allow use of very low Dwell times (1 milliseconds) without sacrificing sensitivity and eliminate Crosstalk to enable Multiple MRM Transition Studies within a single run.		
MRM Acquisition rate	• Should be capable of minimum 500 MRM data points /sec in a single time period, with no loss in sensitivity for co-eluting components at any one point of time.		
Operating Modes	Tandem mass spectrometry should have following scan options a. Full scan a) Selected ion monitoring/recording (SIM/SIR) b) Product ion scanning c) Precursor ion scanning d) Neutral loss/gain scanning e) Multiple reaction monitoring f) Simultaneous full scan and MRM along with matrix monitoring to be performed in a single run g) +ve / -ve polarity switching time between alternate MRM scans is minimum 15ms h) Automatic and manual tuning. i) Information dependent acquisition system or equivalent scan mode of MRM to high sensitivity product ion scan for library confirmation.		
Dynamic range	• 6 orders of magnitude or better		
Detector	• Long life highly efficient electron multiplier or photomultiplier detector or equivalent technology • Must operate both +ve and -ve ion mode and back		
UHPLC	• The Ultra-High Pressure Liquid Chromatography (UHPLC) system should be capable of running with <2 micrometer particle size columns		

Item Code No.	Department	Section	Item Description
LOT 5-2	Diagnostic Laboratories	Clinical Chemistry and Immunology	Liquid Chromatography-Mass Spectroscopy + Atomic Absorptiometry and related Workflows
	• System should have a quaternary pump with an operating pressure of minimum 15000 psi or higher. Purging of pumps must be automated through the software. The flow rate range should be 0.010 to 2.000 mL/min, in 0.001 mL increments. • The instrument should have in-built Vacuum degasser facility with minimum four lines and should be efficient to remove dissolved air online. • System Delay Volume should be less than < 400 µl, independent of system backpressure • & with standard mixer for higher sensitivity. The total System band spread should be ≤15µl or better • The system should have an integrated / inbuilt auto-sampler capable of holding approx 90 vials (1.5 to 2ml) or more. The auto-sampler should have cooling facility upto 5 °C or better and heating upto 40 Cor better. Programmable injection volume from 0.1 µl to 10 µl or better must be available with Integral, Active & Programmable needle wash. The carryover of the autosampler must be less than 0.002% or better. • The system should incorporate a column oven with a temperature control of ambient to 90˚C or better		
Column and Accessories	• Suitable sub 2micron particle size column (100mm length x 2.1 mm diameter) of C18 – 3 nos should be quote should be quote • Various other chemistry columns each three should be quoted with the system. 3.5-µm particle 4.6 × 150 mm X bridge amide column (Waters) (03 numbers) Luna Amino (NH2) column (3 µm, 100A 2 × 150 mm, Phenomenex) (03 numbers) Phenyl Hexyl column (3 µm, 100A 2.1 × 150 mm) Phenomenex (03 numbers) RRHD SB-CN column (1.8 µm, 3.0 × 100 mm, Agilent Technologies) (03 numbers) Acquity HSS UPLC T3 column (1.8 µm particle 50 × 2.1 mm) (Waters, Milford, MA) (03 numbers) Agilent Zorbax Eclipse XDB C18,3.0 x100mm, 3.5 µm (03 numbers) • Vial with Cap and Pre-slit PTFE/Silicone Septa – 1000 nos • Suitable Peek Tube Cutter – 2 no • Suitable Stainless Steel Tubing Cutter with Blades – 2no • Cappliary tube=03		

Item Code No.	Department	Section	Item Description
LOT 5-2	Diagnostic Laboratories	Clinical Chemistry and Immunology	Liquid Chromatography-Mass Spectroscopy + Atomic Absorptiometry and related Workflows
	- Various solvents LCMS grade ACN (40L), Methanol (40L), Toluene (5L), IPA (30L) Acetne (05 litre), chloroform (05 litre) and ethyl acetate (05 litre) should be quoted wth the system. - Capillary wire (charged)-04 - Solvent bottles (10 no.=500 ml, 10 no.= 1L, 10 no.=250mL and 10no.=100mL) - Branded Micropipette with stand each (0.5-10 µL, 100-1000µL, 20-200µL and 10-100µL) - Falcon tubes (15 mL and 30mL) 2000 no. each - Solvent will be arranged by supplier for the smooth demonstration and qualification of the system.		
UPLC waste reservoir	• 2 numbers: Capacity up to 8-10 liters, compatible for storage of polar and non- polar solvents. Should be supplied with 30 meters connecting tube		
Software	• Application software for quantitative applications having the additional requirement of Quality Control (QC) checks to satisfy statutory or regulatory requirements must be available. • This application must be compatible with LC/MS and LC/MS/MS data. Data can be full scan, SIR/SIM or MRM.		
	• Data Acquisition, Peak Integration, Calibration, Quantification and QC calculations must be fully automated. • Quantification and QC parameters must be stored for each compound and individually selected and loaded into new methods. • The quantification method editor must be viewable in page view or as a spreadsheet • This application software must allow the monitoring of the molecular ion plus up to 4 confirmatory ions. • Technology for system optimization and status monitoring, technology should monitor and perform the following parameter: - System parameters checking and alerts - Integrated sample/calibrant delivery system and programmable divert valve - Automated mass calibration - Automated sample tuning - Automated SIR and MRM method development - LC/MS system checks-automated on-column performance test. • This application software must flag samples in the browser report when:		

Item Code No.	Department	Section	Item Description
LOT 5-2	Diagnostic Laboratories	Clinical Chemistry and Immunology	Liquid Chromatography-Mass Spectroscopy + Atomic Absorptiometry and related Workflows
	- the ion ratios fall out-with the user-defined values - the maximum blank acceptance level (user input) has been exceeded - the maximum concentration limit (user input) has been exceeded - the concentration is below the reporting concentration limit (user input) - the concentration falls below the minimum recovery % level (user input) - the concentration falls above the maximum recovery % level (user input) - the coefficient of determination for a calibration curve falls below a user-set level - QC samples fall outside a user-defined number of standard deviations from the mean - the peak of the compound of interest falls below a user defined S/N ratio • Software should have the latest library database of around 1500 compounds viz. (Human metabolome, Antibiotic residues, veterinary drugs residue, Aminoglycosides, macrolides, Dyes, Mycotoxins, Vitamins, Pesticides, etc.) • Pesticide database should contain Molecular formula, Mono isotopic mass, Parent ion, Cone voltage(V), Product ion 1, Collision energy(eV) Product ion 2, RT and sensitivity. • Software must be complied with GLP/GMP & 21 CFR PART 11 & documents must be submitted related to same.		
Workstation & Accessories:	• A Workstation should be provided for controlling the mass spectrometer, the LC and the auto-sampler with data acquisition & for data processing and analysis with minimum following specification: - Memory / RAM: Minimum 50 GB or higher - Hard disk: 10 TB or better - CPU: Dual-Processor, 3.5 GHz or better - Operating system: Windows 10, 64 - bit or better. - 17inch LCD monitor. • 1 Laser jet printer (03 in one). All hardware and software including drivers, monitor, device interfaces cards/network must be preinstalled and preconfigured on the computer provided.		
Startup Kit	• LC-MS/MS start up kit should be supplied as standard		

Item Code No.	Department	Section	Item Description
LOT 5-2	Diagnostic Laboratories	Clinical Chemistry and Immunology	Liquid Chromatography-Mass Spectroscopy + Atomic Absorptiometry and related Workflows
Instrument and Software Qualification Service & Certification:	• The instrument must be "Qualified" along with the Software. Necessary reagents along with Documents must be provided for valid "Instrument Qualification, Operational & Performance Qualification" of the instrument along with Specification check during the installation. • The vendors must quote the Qualification kits with defined list of items along with valid Cat. No./Product ID etc. • During installation and qualification, Instrument should perform as per submitted specification in presence of user.		
Nitrogen Generator with in-built compressor	• A suitable imported noise free nitrogen gas generator with in-built compressor, filters, or any other accessory required for functioning of system, should be supplied to take care gas requirements for ionization source		
Warranty	• Warranty of the instrument along with Nitrogen generator and UPS must be 3 (Three) years comprehensive gas from the installation.		
Others:	• The other gases (2 nos) along with regulator should also be supplied along with the system • Standards/reagents and solvent required for successful installation must be quoted. • Installation must be done at user's site with no extra costs involved. A one week (at least) general entry-level training-cum-workshop and advanced-level training-cum-workshop must be arranged at the user's site by the vendor on experimental and data analysis part, with no extra cost involved. • Proof of Performance documents must be provided with the Compliance sheet. • The Vendor must submit at least 5 or more, latest customer details / PO copies /references of the same model/ similar model supplied in Kenya and the region.. • Satisfactory performance certificate for quoted model taken from government organization along with technical bid shall be submitted. • The model offered by the vendor should have capability to demonstrate the above-mentioned parameter in presence of user. • All provided broachers or technical data sheet should be available in supplier's public website.		
Hardware	Both MS and LC should be from same manufacturer.		

LOT 5-3 Full Automated Biochemistry Analyzer

Item Code No.	Department	Section	Item Description
LOT 5-3	Diagnostic Laboratories	Clinical Chemistry and Immunology	Full Automated Biochemistry Analyzer

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

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

RENAL FUNCTION TESTS REAGENTS		
BLOOD UREA NITROGEN (BUN)		
UREA		
SODIUM		
POTASSIUM		
CHLORIDE		
CREATININE		
LIVER FUNCTION TESTS		
TOTAL BILIRUBIN		
DIRECT BILIRUBIN		
TOTAL PROTEIN		
ALBUMIN		
ALKALINE PHOSPHATASE		
GAMMA GT		
ALANINE TRANSFERASE (ALT)		
ASPARTATE TRANSFERASE (AST)		
CERRULOPLASMIN		
LIPID PROFILE		
TOTAL CHOLESTEROL		
TRIGLYCERIDES		
HDL – CHOLESTEROL		
LDL - CHOLESTEROL		
BONE CHEMISTRY		
CALCIUM		
ALKALINE PHOSPHATASE		
INORGANIC PHOSPHATES		
PANCREATIC FUNCTION TESTS		
A - AMYLASE		
LIPASE		
CARDIAC ENZYMES		
ASPARTATE TRANSFERASE (AST)		
LACTATE DEHYDROGENASE (LDH)		
CREATINE KINASE (CK)		

Item Code No.	Department	Section	Item Description
LOT 5-3	Diagnostic Laboratories	Clinical Chemistry and Immunology	Full Automated Biochemistry Analyzer

CSF BIOCHEMISTRY		
MICROPROTEIN		
GLUCOSE		
LDH		
BODY FLUIDS BIOCHEMISTRY		
PROTEIN		
GLUCOSE		
LDH		
DIABETIC CONTROL MONITORS		
GLUCOSE		
HBA1C		
OTHER TESTS IN CLINICAL CHEMISTRY		
C-REACTIVE PROTEIN		
D-DIMER		
MAGNESIUM		
URIC ACID		
URINARY MICROPROTEINS		
D - DIMER		
TOTAL IRON BINDING CONCENTRATION		
IRON LEVELS		

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

2. Composition					
2.1.	Main unit				
3. Performance Specifications					
3.1.	Main Unit				
3.1.1.	Test menu	At least 120 selections			
3.1.2.	Test per hour	About 200 tests.			
3.1.3.	On- board parameters	At least 30-60			
3.1.4.	Analyzer system	Random access, Discrete, Automatic, Selectable			
3.1.5.		STAT sample priority			
3.1.6.	Programming	User defined and calculations			
3.1.7.					

Item Code No.	Department	Section	Item Description
LOT 5-3	Diagnostic Laboratories	Clinical Chemistry and Immunology	Full Automated Biochemistry Analyzer
3.1.8.	***Sample processing***		
3.1.9.	Sample tray capacity	30 to 60 samples	
3.1.10.	Sample handling Reagent Type	Automatic, Pre and post dilutions Liquid, ready to use. Automatic with level sensing Abnormal flag capability	
3.1.11.	Sample identification	Bar code reader (variety of bar code systems)	
3.1.12.	Sample probe	Probe crash protection, Liquid level Detection and clot detection	
3.1.13.	Probe cleaning Calibration frequency Preventive calibration	Internal and External Test dependent, up to 30 days, auto-quality Memory capability	
3.2.	***Reagent processing***		
3.2.1.	Reagent tray Capacity	about 50	
3.2.2.	Reagent storage	Refrigerated compartment	
3.2.3.	Reagent probe	Probe crash protection, Liquid level Detection	
3.2.4.	Probe cleaning	Internal and External	
3.3.	***ISE Module***	Capable	
3.4.	***Optical Characteristics***		
3.4.1.	Light source	Halogen- Tungsten lamp, easily replaceable	
3.4.2.	Wavelength	340- 800 nm (approximately)	
3.4.3.	Sensitivity Absorbance Resolution	About 0.0001 OD 0.01-3 0.001AVS	

Item Code No.	Department	Section	Item Description
LOT 5-3	Diagnostic Laboratories	Clinical Chemistry and Immunology	Full Automated Biochemistry Analyzer
3.5.	***Data Processor***		
3.5.1.	Operating system	Compatible with Windows 8	
3.5.2.	Interface	Bidirectional RS-232, USB, Ethernet Port	
3.5.3.	Memory	> 10GB	
3.5.4.	Data input	keypads, soft touch	
3.5.5.	Display	Digital display.	
3.5.6.	Printer	In built with provision of external printer	
3.5.7.	Control and Calibration	Automatic, can be adjusted through the software	
3.5.8.	Parameters	Display of running status, alerts,	
3.5.9.		Diagnosis of working status.	
3.5.10.		Software should be upgradeable	
4.	Physical characteristics		
4.1.	Main unit	Bench top	
		Robust construction and easy to clean	
5.	Operating environment		
5.1.	Power Requirements	240V, A/c 50 Hz, Single phase	
5.2.	Ambient temperature	10^{o} C to 40^{o} C	
5.3.	Relative humidity	20% to 90%	
6.	Accessories		
6.1.	UPS (1.25 X the power rating of the machine)		
7.	Quality standards		
7.1.	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1	
7.2.	Conformity to standards	IVD- Directive 98/79/EC,CE and FDA marked	

Item Code No.	Department	Section	Item Description		
LOT 5-3	Diagnostic Laboratories	Clinical Chemistry and Immunology	Full Automated Biochemistry Analyzer		
8.	Delivery point				
8.1.	See Schedule	For inspection			
9.	Installation and testing				
	Complete installation and set-up of the machine at designated hospital as per manufacturer's instructions				
9.1.	Technical documentations				
9.2.	User manuals	2 Sets			
9.3.	Service Manual	2 Set			
10.	Commissioning				
	Testing and commissioning of the machine to the satisfaction of the user.				
B**: Reagents and consumable supply** **11.** Start-up Kits Controls & calibrates must be provided for all the Tests					
C: Training of user and maintenance staff					
12.	User Training	Scheduled on-site user training on operation and daily up keep.			
12.1.	Maintenance training	Scheduled on-site maintenance training on preventive maintenance.			

LOT 5-4 Immunochemistry Analyzer

Item Code No.	Department	Section	Item Description
LOT 5-4	Diagnostic Laboratories	Clinical Chemistry and Immunology	Immunochemistry Analyzer
1. General Description			

S/No.	Specification	Remarks
1.1.	Brand New Floor Model to be installed and it should not be refurbished one.	
1.2.	Should be based on the principle of chemiluminescence /Electrochemiluminescence. Immunoassay technology with very high sensitivity and linearity.	

Item Code No.	Department	Section	Item Description
LOT 5-4	Diagnostic Laboratories	Clinical Chemistry and Immunology	Immunochemistry Analyzer

1.3.	Fully automated with a throughput of 250 tests or more per hour.	
1.4.	Both the equipment and reagent should have USFDA and European CE Certification	
1.5.	It should be able to detect concentrations below, in and above the range of normal clinical levels.	
1.6.	The sample can be serum, Plasma, urine, CSF and other body fluids.	
1.7.	The test types will include hormones, tumour markers, antibodies to infectious diseases, auto immune diseases, allergy, cardiac, nutrition markers, markers of bone metabolism, reproductive markers, and Triple markers.	
1.8.	There should be random sampling with minimum sample volume ranging from 10-75 microliter with minimum dead volume.	
1.9.	Analyser should have clot detection facility.	
1.10.	Analyser should have facility for paediatric sample cup.	
1.11.	Use of disposable cups, cuvettes, and tips to have minimum carry over.	
1.12.	There should be provision for onboard dilution with automatic calculation.	
1.13.	Provision for both bar code reading and manual entry.	
1.14.	Provision for running emergency (stat) tests.	
1.15.	Noise generated should be less than 50 decibels.	
1.16.	Supplied with UPS with a minimum of 2hrs backup.	
1.17.	Operating software: windows or compatible.	
1.18.	System should have high resolution touch screen.	
1.19.	Attachable printer with real time individual sample reporting facility.	
1.20.	Program should be compatible with our Laboratory information system (CDAC e-sushrut G5) for easy reporting.	
1.21.	Program should have access to report retrieval, statistics and storage for data should be up to 1 year or more.	
1.22.	There should be provision for on board refrigeration and stability of reagents for at least 15 days.	

Item Code No.	Department	Section	Item Description
LOT 5-4	Diagnostic Laboratories	Clinical Chemistry and Immunology	Immunochemistry Analyzer

1.23.	40 or more reagents on board at a time, with on board reagent inventory management.	
1.24.	The pack size of reagents should range from 20 to 500.	
1.25.	The reagents should be ready to use.	
1.26.	The reagent should be supplied through authorized dealer in Kenya	
1.27.	All supplied reagents should have a minimum shelf life of 6 months.	
1.28.		

It should be capable of measuring the following parameters;

	COMMON IMMUNOCHEMISTRY ASSAY TESTS			
1	CA 15 – 3			
2	CA 19 – 9			
3	CA 125			
4	TOTAL PSA			
5	FREE PSA			
6	TESTOSTERONE			
7	PROGESTERONE			
8	LUTEINIZING HORMONE (LH)			
9	PROLACTIN (PRL)			
10	FOLLICLE STIMULATING HORMONE (FSH)			
11	FOLLIC ACID (FOLATES)			
12	VITAMIN B12			
13	THYROID STIMULATING HORMONE TSH			

14	FT3			
15	FT4			
16	TT3			
17	TT4			
18	BETA HCG (B –HCG)			
19	GROWTH HORMONE (GH)			
20	PARATHYROID HORMONE(PTH)			
22	PROCALCITONIN			
23	CALCITONIN			
24	TROPONINS			
25	SEX HORMONE BINDING GLOBULIN(SHBG)			
26	THYROID BINDING GLOBULIN			
27	ALPHA-FOETOPROTEIN			
28	CYCLOSPORINE			
29	TACROLIMUS			
30	AMH			
31 32	PAPP			
33	PRO BNP			
34	HER 4			
35	SCC			
36	NT PRO GRP			
37	NSE			
38	MYOGLOBIN			
39	INTACT PTH			

40	CORTISOL			
41	ANTI TP			
42	ANTITG			
43	DHEAS			
44	C-PEPTIDE			
DRUGSOF ABUSE TESTING				
41	METHAMPHETAMINE			
42	TRICYCLIC ANTIDEPRESSANT			
43	BENZODIAZEPINE			
44	METHADONE			
45	PHENOBARBITAL			
46	PHENCYCLIDINE			
47	CARBAMAZEPINE			
48	CANNABINOIDS			

SEROLOGY TESSTING

1. HIV
2. VDRL
3. HERPES SIMPLEX 1 & 2
4. HBsAg
5. HEP A
6. HEP B
7. HEP C
8. HEP E
9. TORCHES
10. CMV
11. CLAMIDIA
12. EBV
13. ANA

14. Anti-dsDNA
15. ANTI-CCP
16. TOTAL IGG
17. TOTAL IGA
18.TOTAL IGM
19. TOTAL IGE
19. C-ANCA
20. ANTI-PHOSPHOLIPIDS LIPIDS
21. P-ANCA
22. C3 COMPLEMENT
23. C4 COMPLEMENT
24. PIIINP
25. ENA PANEL
26. ALLERGY PANNEL

LOT 5-5 ISE Electrolyte Analyzer

Item Code No.	Department	Section	Item Description
LOT 5-5	Diagnostic Laboratories	Clinical Chemistry and Immunology	ISE Electrolyte Analyzer

1. General Description

- Should be able to analyze Sodium, Potassium, chloride, and Ionized Calcium based on ISE technique.
- Should be able to process whole blood, serum, plasma, dialysate, urine, and other body fluids
- Sample volume requirement should be equal to or less than 100µL
- All the reagent solutions and waste container should all be sealed within a single user-friendly pack.
- Should be compatible to process samples from sample cup, collection tube, capillary tube, syringe, etc
- Fully automatic calibration cycles
- Should be programmable to automatically enter the standby mode during periods of non-use
- Should be provided with maintenance free electrodes.
- Should have built in thermal printer.
- Should have capability for bi-directional computer interface.
- Should provide solution pack to run 1500 samples, internal filling solution and urine diluents for atleast 500 samples
- Should be provided with daily cleaning /rinse solution for 6 months duration.
- Should be supplied with appropriate UPS with at least 60 min back up. (Range 60-90 mins)
- Should have two-year warranty followed by 5 years CMC, from the time of installation (2+5)
-
- Should have a starter-pack for initial running inclusive of all levels of QC materials and calibrators

LOT 5-6 Protein Electrophoretic Machine

Item Code No.	Department	Section	Item Description
LOT 5-6	Diagnostic Laboratories	Clinical Chemistry and Immunology	Protein Electrophoretic Machine

1. General Description

This is a Haemoglobin screening and testing system with following specifications

S/No.	Technical specifications
	CAPILLARY ELECTROPHORESIS UNIT
1.1.	The Horizontal Gel Box system should offer extended run length and improved resolving area for complex analysis in a mini gel format
1.2.	The system should be designed for rapid separation of hemoglobin molecules or agarose gels and should be ideal for sickle cell analysis.
1.3.	UV transmissible gel tray with fluorescent graduation on the base of the gel tray. The gel tray dimensions should be appropriate with grooves on the side for gripping the gel tray. It should have two comb slots on the sam tray area.
1.4.	The gel tray should have stable silicone gaskets, so that no separate casting tray is required
1.5.	It should provide two combs, 10 and 14 tooth each
1.6.	Buffer capacity should be 600 ml for the buffer tanks and optimum gel runs with a fill line indicator for buffer levels along the unit side
1.7.	Max electrode seperation in 19 cm with a Maximum Voltage of 150 V , such that it has 5volts per cm of electrode separation (5 V x 19 cm = 95 V)
1.8.	It should have a buffer chamber with color coded sealed platinum electrodes which are very sturdy and long lasting than the generally offered silver electrodes
2.	**ELECTROPHORESIS POWER SUPPLY**
2.1.	It should be ergonomically designed equipment, which is light weight and occupies less table space.
2.2.	To increase the user's safety, none of the outlets has to be directly wired to the earth. The terminals have to be floating and have deeply recessed contacts
2.3.	It must be robust to provide uninterrupted service for years
2.4.	Specific output control for both voltage and current specifications. Ability to change the voltage from 10 - 300 V as minimum of 250 volts will be required for electrophoresis run, Current to be adjusted from 4-400 mA
2.5.	The supply must be integrated with digital displays to provide error free and precise output settings. To be provided with 3-digit display
2.6.	It must have built in timer for unattended runs. This prevents the need for continuous monitoring and eliminates risk of sample over runs. It should be programmable from 1 minute to 999 minutes with digital display
2.7.	Provision for running multiple gels at single time. To serve this purpose it should be provided with four outputs and power of 75 W

Item Code No.	Department	Section	Item Description
LOT 5-6	Diagnostic Laboratories	Clinical Chemistry and Immunology	Protein Electrophoretic Machine
3.	**Reagents and Chemicals**		
3.1. 3.2.	Pre weighted vials of Molecular Biology Grade, Agarose, Low EEO, DNase and RNase free		
3.3.	Protein Electrophoresis Buffer		
3.4.	Protein Gel Staining Solution		
3.5.	Wash Solution		

LOT 5-7 Centrifuges

Item Code No.	Department	Section	Item Description
LOT 5-7	Diagnostic Laboratories	Clinical Chemistry and Immunology	Centrifuge
1. General Description			
For laboratory use. Tabletop model			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	The unit should be a model or type on current production		
3.1.2.	Maximum speed	above 6000 rpm	
3.1.3.	Maximum RCF	4600G	
3.1.4.	Timer	Provided	
3.1.5.	Brake system	Provided	
3.1.6.	Safety System	Door open	
3.1.7.	Rotor Type	Swing out and fixed angle rotor	
3.1.8.	Tube adapter	4/5 ml, 15ml X 12 pcs or more	
3.2.	Rotor	2 sets: fixed angle and swing out	
3.3.	Tube adapter	2 Sets for fixed angle and swing out	

Item Code No.	Department	Section	Item Description
LOT 5-7	Diagnostic Laboratories	Clinical Chemistry and Immunology	Centrifuge
3.4.	Rotor locking wrench	2 pieces	
4.	Physical characteristics		
4.1.	Main unit		
4.2.	Dimensions	Tabletop model	
5.	Operating environment		
5.1.	Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug, 3m long cord BS type with PE	
5.2.	Ambient temperature	10^{o} C to 40^{o} C	
5.3.			
5.4.	Relative humidity	20% to 90%	
6.	Consumable		
6.1.	Test tubes	Start-up Kits must be provided.	
7.	Quality standards		
7.1.	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1	
7.2.	Conformity to standards	IVD- Directive 98/79/EC, CE and FDA marked	
8.	Local back up service		
8.1.	Available	Should be available locally	
8.2.	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables, and qualified and skilled technical staff	
9.	Delivery point		
9.1.	See Schedule	For inspection and testing	
9.2.	Nil		
10.	Pre installation requirements		
	Nil		
11.	Installation and testing		
	Complete installation and setup of the machine as per manufacturer's instructions		
12.	Training		

Item Code No.	Department	Section	Item Description
LOT 5-7	Diagnostic Laboratories	Clinical Chemistry and Immunology	Centrifuge
12.1.	User Training	On site user training on operation and daily upkeep	
12.2.	Maintenance training	Onsite maintenance training on preventive maintenance	
13.	Technical documentations		
13.1.	User manuals	2 Sets	
13.2.	Service Manual	1 Set	
13.3.	Drawings	Nil	
14.	Commissioning		
14.1.	Testing and commissioning of the machine to the satisfaction of the user.		
15.	Warranty		
15.1.	Equipment	Minimum of one year after commissioning on all parts.	
15.2.	Equipment System	Nil	
16.	Accessories		

LOT 5-8 Refrigerator

Item Code No.	Department	Section	Item Description
LOT-5-8	Diagnostic Laboratory	Clinical Chemistry and Immunology	Refrigerator
1. General Description			
Refrigerator			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	Material	Insulated galvanized steel	

Item Code No.	Department	Section	Item Description
LOT-5-8	Diagnostic Laboratory	Clinical Chemistry and Immunology	Refrigerator
3.1.2.	Type	Compressor, electrical	
3.1.3.	Door	Double door, glass type	
3.1.4.	Temperatures range	2 to 8^{o}C stable ± 0.5^{o}C	
3.1.5.	Ambient temperature	10 ^{o} C to 35^{o}C	
3.1.6.	storage capacity	> 800 litres	
3.1.7.	Shelves	Provided, adjustable and extractable with dividers	
3.1.8.	Temperature monitor	Digital display with temperature record history	
3.1.9.	Control	Electronic, Microprocessor based	
3.1.10.	Refrigerant	CFC free	
3.1.11.	Alarm	Provided, audible and visible	
3.1.12.	Power	240V, 50 Hz, a.c	
3.1.13.	Cycle –defrost function	Fully automatic during normal operations	
4.	Quality standards		
4.1.	Manufacturing standards	ISO 9001, ISO 13485, ISO 14001	
4.2.	Conformity to standards	CE and FDA marked.	
5.	Delivery point		
5.1.	See Schedule	For inspection and testing	
5.2.	Nil		
6.	Warranty		
6.1.	Equipment	Minimum of one year after commissioning on all parts.	
6.2.	Equipment System	Nil	
7.	Accessories		
7.1.	Automatic Voltage Regulator (AVR)		
7.1.1.	Capacity	Over VA of the main Unit	

Item Code No.	Department	Section	Item Description
LOT-5-8	Diagnostic Laboratory	Clinical Chemistry and Immunology	Refrigerator
7.1.2.	Input	Ac 240V, 50Hz, Single phase ± 15%	
7.1.3.	Output	Ac 240V, 50Hz, Single Phase ± 2.5 %	

LOT 5-9 Deionizer

Item Code No.	Department	Section	Item Description
LOT 5-9	Laboratory	Clinical Chemistry and Immunology	Water Distiller/Deionizer
1. General Description			
Required for distilled water production for lab			
2. Composition .			
2.1.	Main unit		
3. Description of the medical supply unit design type			

Operational Requirements
Double distillation plant with stand, not wall mounted and approx. 5 – 10 litres/ hour output.
Instant distilled water flow should be there
Easy to operate, durable, safe for routine use.
Re-do specifications for de-ionizer

Technical Specifications
Quartz distiller, Demountable boiler
Panel box and stand to accommodate regulator and electrical supply, clamps etc
Quality of distillate – pyrogen free, PH- 6.9- 7.0. High purity, low conductivity.
Distilled water should be heavy metal, salts, pyrogon and iron free.
Specific Conductivity at 25 deg C less than 0.4 x 10-6S/cm
Glass material (or chemical inert material)
Equipment should be thermal shock proof.

Gas vent should be there to remove volatile impurities leaving the condensate free from gaseous impurities
Automatic low water cut off.
Tubing should be made up of good quality rubber (heat resistant).
Wiring of the equipment should be enclosed in Case.
It should have deconcentrator a bleeder device on the evaporation that constantly removes a part of the boiling water from it so that the cumulative concentration of nonvolatile impurities in the water is prevented

Item Code No.	Department	Section	Item Description
LOT 5-9	Laboratory	Clinical Chemistry and Immunology	Water Distiller/Deionizer

System Configuration Accessories, spares, and consumables
System as specified-
All consumables required for installation and standardization of system to be given free of cost.

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 UK BS plug
Voltage corrector/stabilizer of appropriate ratings meeting ISI Specifications. (Input 160-260 V and output 220-240 V and 50 Hz)
Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.

Standards, Safety and Training

Should be FDA, CE, UL or BIS approved product
At least 2 years warranty, 5 yrs comprehensive AMC should be available with service centers in close proximity.
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.

Documentation

User/Technical/Maintenance manuals to be supplied in English, both soft and hard copies
Certificate of calibration and inspection.
List of important spare parts and accessories with their part number and costing.

LOT 5-10 Cold Room

Item Code No.		Department	Section	Item Description
LOT 5-10		Diagnostic Laboratories	Clinical Chemistry and Immunology	Cold Room
1. General Description				
	Cooler			
Clause	**Description**	**Sub clause**	**Technical Particulars**	
1.	**Description of Function and capacity**	1.1.	Walk in Cold rooms are required to store for long term duration of large quantity of reagents at a temperature between +2 deg to +8 deg C.	
		1.2.	**Typical gross internal volume should be 15 cum**	
2.	**Operational Requirements**	2.1.	To be constructed of prefabricated, modular complete with floor and ceiling panels, mounted on a flat, solid concrete base.	
		2.2.	The cold room should be equipped with two completely independent refrigeration systems. One of these will remain as standby.	
		2.3.	Each refrigeration system must be provided with it respective separate: a) condensing unit, b) evaporator unit, c) refrigeration unit, d) electronic controls, e) pipe work and f) other necessary control instrumentation, to ensure proper operation of each respective Refrigeration system.	
		2.4.	Provide additional control which permits simultaneous operation of both refrigeration systems in case of emergency.	
		2.5.	There should be manual & automatic switchover to the standby system by thermostatic or electrical control.	
		2.6.	There should be programmable automatic	
			operational duty cycle for the switch over to the	
			standby refrigeration system.	
		2.7.	Depending upon the internal room layout and the room location, refrigeration units may be one of the following types:	

Item Code No.		Department	Section	Item Description
LOT 5-10		Diagnostic Laboratories	Clinical Chemistry and Immunology	Cold Room
			• Wall-mounted with the condenser unit discharging inside the building that houses the cold room (monobloc system); • Wall-mounted with weatherproof condenser units located externally as close as possible to the evaporator units (weatherproof split system); • Wall-mounted with condenser units located in a separate ventilated enclosure mounted as close as possible to the evaporator units (split system).	
3. **Technical Specifications**				
3.1.	**Internal Temperature:**	3.1.1.	+2 deg to +8 deg C adjustable (i) during 43 deg C continuous ambient (ii) 32 deg continuous ambient (iii)45/05 deg C day/night cycling temperatures	
3.2.	**Panels:**	3.2.1.	wall and roof panel skins can be made from stainless steel of Grade 304	
		3.2.2.	Outer and inner Panels:	
			Powder coated, made of galvanized steel panels, double wall having minimum thickness 22 SWG each.	
		3.2.3.	Panels must be fully insulated and without internal structural members or stiffeners between the skins.	
		3.2.4.	Tongued and grooved joints between panels must be designed to minimize cold bridging.	
		3.2.5.	Gaskets must be resistant to damage from oil, fats, water, and detergents.	
		3.2.6.	After assembly, all joints must be mastic sealed on the interior side to ensure air- tightness.	
		3.2.7.	Roof panels with an overall length of 6 metres or less must be self-supporting.	
		3.2.8.	Modular panel-Easily assembled and dissembled.	
		3.2.9.	Double action cam-lock assembly/panel interlocking, for perfect seal.	
		3.2.10.	No screws or panel cover strips.	
		3.2.11.	Have airtight seals between condensing unit and wall.	

Item Code No.		Department	Section	Item Description
LOT 5-10		Diagnostic Laboratories	Clinical Chemistry and Immunology	Cold Room
		3.2.12.	Have airtight seals around all pipe and cable penetrations through wall and/or roof panels.	
3.3.	**Insulation**	3.3.1.	CFC-Free Urethane foam or extruded polystyrene foam core bonded sandwiched between two galvanized steel sheets.	
		3.3.2.	Minimum thickness: 100 mm	
		3.3.3.	Density: not less than 40 kg/m^3	
		3.3.4.	Thermal conductivity of 0.17 w/m2k or better for hot zone climate.	
		3.3.5.	Thermal insulation foaming agents: Any gas complying with limitations and deadlines set by the Montreal Protocol on the elimination of ozone-depleting chemicals.	
3.4.	**Flooring:**	3.4.1.	Base - 1st layer: 75 mm thick cement concrete	
			(dimensions suitable to the size of cold room);	
		3.4.2.	2^{nd} layer of specified insulation as specified in para 3.3 - Extruded polystyrene slabs laid with the joints staggered to achieve a 'U' value of 0.17 W/m.K or better. - 250-micron polythene vapor barrier. - Reinforced granolithic concrete topping trowel led smooth.	
		3.4.3.	3rd layer of 6mm (minimum) non-slip finish Aluminium checker plate.	
		3.4.4.	The floor should be capable to support load of 1500 kg/m2.	
		3.4.5.	Concrete floors must be designed and constructed to allow Shallow ramped access entry to the cold room or freezer room.	
3.5.	**Door**	3.5.1.	The door should have: (i) Heavy duty lock - lockable with 100% fail-safe provision for opening from inside. (ii) The door should be self-closing type	
		3.5.2.	Plastic curtains on the doorway.	
		3.5.3.	Door should be flush type with kick plate at bottom and fitted with door closer.	

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LOT 5-10		Diagnostic Laboratories	Clinical Chemistry and Immunology	Cold Room
		3.5.4.	Examination Window (View port).	
		3.5.5.	Seal closer mechanism which cushions the closing	
			Movement of the door, shuts the door silently and keeps it seal-closed preventing loss of cooling.	
		3.5.6.	An incandescent vapour-proof light mounted on the interior of the vaccine chamber.	
		3.5.7.	Dimensions: 34" to 40" (W) x72" to 80" (H).	
		3.5.8.	Additional alarm switch to be fitted inside the cold room close to the door latch.	
3.6.	**Lighting**	3.6.1.	Internal ceiling-mounted low energy fluorescent or LED luminaries with	
			an external switch with pilot light.	
		3.6.2.	The external light and light switch must be fixed to the wall of the cold room enclosure near to the entrance door.	
		3.6.3.	The minimum illumination level on the vertical face of the lowest shelves must be 150 lux.	
		3.6.4.	The lighting should be evenly distributed inside the cold room.	
3.7.	**Refrigeration System:**	3.7.1.	Dual Refrigeration system (100% standby)	
		3.7.2.	The refrigeration system should have 3.5 to 4 KW compressor for 15 cum Walk-in-cooler.	
		3.7.3.	Cooled refrigeration units, preferably Mono-block type	
		3.7.4.	Automating defrosting (electric or hot gas)	
		3.7.5.	CFC-free refrigerant.	
		3.7.6.	Tropicalized units suitable for ambient temperature up to 45 deg C.	
		3.7.7.	In case of a split system, the condensing Unit should be mounted in a whether proof enclosure with proper canopy so as to get protection from rain and hard weather and prevent any vandalism or injury to people upon accidental access.	
		3.7.8.	Condensing unit (s) to comprise compressor with: a) Forced air condenser, b) Oil level glass, c) Oil separator,	

Item Code No.		Department	Section	Item Description
LOT 5-10		Diagnostic Laboratories	Clinical Chemistry and Immunology	Cold Room
			d) liquid receiver to carry full charge, e) Filter/dryer with flare connections, f) Isolating stop valves. g) Fixed high and low pressure dial gauges. h) Fitted with high and low pressure cut-outs, i) Time-operated electric defrost control j) It should have run hour meter. k) Where cold climate freeze prevention is specified provide a low temperature protection system to prevent the temperature protection system to prevent the temperature of the cold room dropping below +2oC under low ambient conditions.	
3.8.	**Evaporator:**	3.8.1.	Evaporators to be forced air, wall or - ceiling-mounted units with a condenser unit discharging inside the building that houses the cold room.	
		3.8.2.	There must be a timer operated electric defrosting system and a condensate drip tray and drain connection.	
		3.8.3.	Size and position the evaporator units so that the plume of discharged air at a temperature below +2°C does not reach areas where vaccine is stored. If necessary provide a removable mesh cage or deflectorshield around the evaporator so as to maintain the safe storage zone.	
4. **Temperature Control, monitoring & Recording:**				
4.1.	**Temperature Control**	4.1.1.	Room temperature must be controlled by a thermostat within the tolerances specified.	
		4.1.2.	The thermostat must be calibrated to ITS-90 and be accurate to ± 0.5°C or better.	
		4.1.3.	All parts of the room designated for vaccine storage must remain between 2^{o}C to 8^{o}C when measured under any loading condition between empty and full and over the full ambient temperature range of the required temperature zone.	
		4.1.4.	The control supply relay carrying the compressor running current should be rated twice the running current or provide additional contactor to be provided in the control circuit to sustain the	

Item Code No.		Department	Section	Item Description
LOT 5-10		Diagnostic Laboratories	Clinical Chemistry and Immunology	Cold Room
			running current, without causing overheating of the control boards.	
4.2.	**Temperature Monitoring and recording**	4.2.1.	Provide a digital temperature recording system with display controlling indicating logging facility: for example: A programmable electronic temperature and event data logger system with minimum 10,000 data storage capacity, auto-dialler complying with PQS E006/TR03 linked to the alarm system.	
		4.2.2.	Wall mounted seven days graphic temperature recorder not using thermal paper.	
		4.2.3.	Provide a backup gas or vapour pressure dial thermometer complying with PQS E006/TH02, mounted on the wall of the cold room in an accessible position.	
4.3.	**Alarm & Buzzer**	4.3.1.	Provide a mains-operated audible and visible loud alarm with battery backup and automatic recharge, which is triggered in the event of mains failure or when the cold room temperatures are outside set limits.	
		4.3.2.	In case of a triggered event, the acoustic alarm unit must comply as per specification WHO/PQS/E06/AL01-01 or with E006/TR03	
		4.3.3.	Alarm sounders are to be located adjacent to the cold room. Buzzer system: Visual indicator along with buzzer alarm system should be provided to alert the user in the following events: a) Power failure alarm b) High pressure (dirty condenser) alarm c) Open door alarm d) Probe failure alarm	
		4.3.4.		
		4.3.5.	It should have back-up battery for control its panel	
5.	**Storage Condition**	5.1.	Storage conditions to be maintained at + 5 deg C ±3 deg C continuously, control by thermostat on each cold room.	
6.	**Shelves**	6.1.	Cold room(s) to be fitted with locally made/manufactured, running height adjustable perforated shelves (slotted shelves will be preferred)	

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LOT 5-10		Diagnostic Laboratories	Clinical Chemistry and Immunology	Cold Room
		6.2.	600 mm wide at 600 mm spacing;	
		6.3.	Four shelves above the ground all around the wall and intermediate shelves should be placed suitably.	
		6.4.	The total area covered by shelves should be at least 42% of the ground area.	
		6.5.	There should be enough distance in between two intermediate racks, to facilitate the movement of men and material.	
		6.6.	The final drawing of the room with shelves will have to be got approved from the authorities after placement of NOA.	
		6.7.	The material of the shelves should be non-corrosive 304 grade stainless steel to take load of at least 0.075kg/cm^2.	
		6.8.	The top face of the lowest shelf must be mounted 200 mm above the floor.	
		6.9.	Shelving must be washable.	
7.	**Environmental factors**	7.1.	The unit shall be capable of operating continuously in ambient temperature of 5 to 45^oC and relative humidity of 95%	
8.	**Installation:**	8.1.	Complete installation, testing and commissioning is to be done by the supplier inclusive of: a) Installation of stabilizer, b) Drainage system c) Assembly of the panels d) Refrigerator units, e) Data logger f) Adequate smoke evacuation system, Generator as per CPCB. g) All other related work required for installation as per WHO PQS and guidelines. h) Separate earthing must be provided respectively for Genset and WIC The installation and commissioning should be done by supplier	
9.	**Power Supply**	9.1.	Power input: 220-240V/ 50 Hz AC Single phase or 380-400V AC 50 Hz, three phases.	
		9.2.	Fitted with BS fittings and sockets.	

Item Code No.		Department	Section	Item Description
LOT 5-10		Diagnostic Laboratories	Clinical Chemistry and Immunology	Cold Room
		9.3.	Suitable automatic voltage regulator/stabilizer meeting IS 9815, IEC 60335-1 & IEC 60364-1 specifications should be supplied.	
		9.4.	Voltage regulator should have capacity to take load of both refrigeration units (main as well as standby).	
10.	**Standards, Safety and Training**	10.1.	Electrical and refrigeration components and the panels should have:	
		10.2.	National or international approvals like UL, IEC 60335 -1 2006	
		10.3.	Safety of household & similar electrical appliances. / IEC 60364-1,/ ISO 20282-1:2006	
		10.4.	Ease of operation of everyday products, / Electrical safety rating: meet IEC **60335**-1, IEC 60364-1- Voltage, frequency & phasing: single phase, three-phase - voltage stabilizers and surge protections.	
		10.5.	All operational and maintenance training by trained personal of manufacturer to the end users after successful installation and commissioning.	
11.	**Warrantee:**	11.1.	**Provide Warranty for at least 2 years** and Comprehensive Maintenance Contract for 5 years, ensure provision of consumables including spares and accessories within the warranty period excluding batteries (warranty as per manufacture norm, minimum of two years) and diesel for DG set.	
		11.2.	Provide commitment and quote for Comprehensive Maintenance Contract (CMC) for 5 years after the 5 years	
		11.3.	Guarantee for availability of spares for 10 years after warrantee.	
12.	**After Sales Service:**	12.1.	Should have local / regional authorized service facility.	
		12.2.	The service provider should have the necessary equipment and spares recommended by the manufacturer to carry out preventive maintenance and repair as per guidelines provided in the service/maintenance manual.	
13.		13.1.	All minor repairs should be attended to and completed within 24 hours of the intimation.	

Item Code No.		Department	Section	Item Description
LOT 5-10		Diagnostic Laboratories	Clinical Chemistry and Immunology	Cold Room
	On-site maintenance:	13.2.	Any major break down (e.g. compressor failure, gas leakage, control paned burn-out) must be attended to and put back into functional condition within seven days following first intimation.	
		13.3.	If both refrigeration system have failed, at least one refrigeration system must be repaired or replaced within 24 hrs.	
14.	**Documentation Certification and Manuals**	14.1.	Test certificate of inspection should be submitted at the time of prototype inspection along with: a) Cool down time, b) Running test, as per WHO quality Assurance Protocol WHO/PQS/E001/CR-FR01- VP2 of any capacity from an independent laboratory approved /recognized by WHO/UNICEF/National Accreditation board/ILAC/STQC lab is essential, should be submitted at the time of prototype inspection.	
		14.2.	Separate Certificate of inspection for tendered item from an independent laboratory approved/recognized by WHO/UNICEF/National Accreditation Board/ ILAC/ STQC Labs or third-party inspection agency is essential and is required to be submitted at the time of delivery.	
		14.3.	List of important spare parts, and accessories with their part number and costing.	
15.	**Installation instructions:**	15.1.	Provide a comprehensive, illustrated (including all wiring diagrams) with step-by-step installation manual suitable for use by the installer, covering the unpacking, assembly, testing and commissioning of all the system components, including safe working procedures to be observed.	
		15.2.	The manual must be supplied in triplicate - one copy for the employer, one for the installer and one for the maintenance contractor.	
16.	**Service instructions:**	16.1.	Provide a comprehensive, illustrated service and workshop manual, suitable for use by the maintenance contractor, covering all the system components, including safe working procedures to be observed.	

Item Code No.		Department	Section	Item Description
LOT 5-10		Diagnostic Laboratories	Clinical Chemistry and Immunology	Cold Room
		16.2.	The manual must be supplied in duplicate - one copy for the employer and one for the maintenance contractor.	
17.	**User instructions:**	17.1.	Provide a comprehensive, illustrated maintenance manual suitable for the user and covering all aspects of safe operation and routine non-specialist maintenance of the cold room.	
		17.2.	The manual must be supplied in duplicate - one copy for the employer and one for the maintenance contractor.	
		17.3.	Logbook with instruction for daily, weekly, monthly, and quarterly maintenance checklist.	
18.	**Post commissioning certifications:**	18.1.	Test certificate of inspection for all test, as per WHO quality Assurance Protocol WHO/PQS/E001/CR-FR01-VP2 of installed cold room from an independent laboratory approved /recognized by WHO/UNICEF/National Accreditation board/ ILAC/STQC lab or third-party inspection agency after installation and commissioning of cold room to be submitted along with Final Acceptance Certificate.	

LOT 5-11 Urine Analyzer

Item Code No.	Department	Section	Item Description
LOT 5-11	Diagnostic Laboratories	Clinical Chemistry and Immunology	Urine Analysis- Readers and Strips
1. General Description			
SPECIFICATION FOR URINE ANALYZER			
2. Composition			
Specifications 2.1. The system should be compact and simple to use 2.2. Should use photoelectric colorimetric principle 2.3. Should be designed to read up at least 10 Parameters of urine test strips. 2.4. There should be provision for the user to select number of parameters to be read: i.e. starting from only 2 Parameters (Protein, glucose), 4 Parameters (Protein, glucose, specific gravity and pH) and up to 10 parameters (Protein, glucose, specific gravity,			

Item Code No.	Department	Section	Item Description
LOT 5-11	Diagnostic Laboratories	Clinical Chemistry and Immunology	Urine Analysis- Readers and Strips

pH, Ketone bodies, bilirubin, urobilinogen, nitrite and leucocytes/pus cells) from the respective strips for 2,4 and 10 parameters as required.

2.5. Should display the results in LCD display with relatively good resolution to display all the results.

2.6. The system should have in built thermal printer and also provision to connect external printer.

2.7. System should be able to accept other manufacturer's urine strips.

2.8. Should be supplied with a starter pack kit

2.9. Should store minimum of 200 samples test result in memory.

2.10. Sample cups should be disposable. Should work on 200-240 AC 50/60Hz power supply.

2.11. Should have safety certificate from a competent authority CE or USFDA.

2.12. .

2.13. Should have atleast one-year warranty and 5 years Comprehensive annual maintenance contract effective from the year of installation

2.14. On site demo for lab staff shall be provided.

2.15. Should provide with calibration certificate issued by the manufacturer at the time of installation.

2.16. should be able to do performance qualification and calibration

2.17. Should provide user manuals both in hard and soft copies.

3. General Specifications:

3.1. The equipment should be suitable for operation in temperatures from 10° C to 45 ° C with a relative humidity of 85%.

3.2. Labels and markings should be clear and visible.

3.3. Name plate Details to be provided (Manufacturer's Name & Address, Serial Number, Model No, Power supply ratings, Power Consumption, Date /Year of Manufacturer, etc.,)

3.4.

3.5. Should have user manual both in hard and soft copies

LOT 5-12 Clinical Microscope

Item Code No.	Department	Section	Item Description
LOT 5-12	Diagnostic Laboratories	Microbiology and parasitology	Clinical Microscope
1. General Description			
All-purpose microscopes for general laboratory use, with binocular head, inclined 45^{o}, build in graduated mechanical stage with control knob, with iris diaphragm, and filter holder, eye pieces, objective lens and illumination controls.			
1.1. Composition			
1.2.	Main unit		
2. Performance Specifications			
2.1.	Main Unit		
2.2.	Magnification	50 to 1000x or wider	
2.3.	Eyepieces	Paired 10x wide field	
2.4.	Objective	Magnifications 10x, 40x, 100x (oil immersed or dry type)	
2.5.	Optical System	Universal Infinity System	
2.6.	Observation Tube	Binocular	
2.7.	Angle of Inclination	45^{o}C	
2.8.	Interpupillary Adjustment Distance	> 40 – 70 mm	
2.9.	Condenser Type	Universal condenser, N.A. 0.9 or Abbe or Swing out	
2.10.	Mechanical Stage	Graduated, with coarse and fine focusing control	
2.11.	X-Y motion control	Adjustable	
2.12.	X-Y motion vernier	0.1 mm or less	
2.13.	Vertical movements of stage	20mm or more	
2.14.	Focusing Control	Coarse Focusing - Stage Height Movement	
		Fine Focus Graduation	
2.15.	Illumination System	built in base illuminator, LED with	
		Brightness control, mains operated.	
		Filters with colour temperature correction.	
		Mirror Unit for Natural Light Illumination	
3.	Physical characteristics		

Item Code No.	Department	Section	Item Description		
LOT 5-12	Diagnostic Laboratories	Microbiology and parasitology	Clinical Microscope		
3.1.	Main unit				
3.1.1.	Approximate dimensions				
3.2.	Operating environment				
3.2.1.	Power Requirements	240V, A/c 50 Hz			
3.2.2.	Humidity				
3.3.	Accessories				
3.3.1.	Storage	Lockable Cabinet/Box			
3.3.2.	AVR				
3.3.3.	Capacity	Over VA of the main Unit			
3.4.	Consumables				
3.4.1.	Nil				
3.5.	Quality standards				
3.6.	Manufacturing standards	IEC 60601-1, ISO 13485, ISO 9001			
3.7.	Conformity to standards	CE and FDA marked.			
3.7.1.	Delivery point				
3.7.2.	See schedule				
3.7.3.	Pre installation requirements				
3.7.4.	Nil				
3.8.	Installation and testing				
3.8.1.	Testing at delivery point				
3.9.	Technical documentations				
3.9.1.	User manuals	2 Sets			
3.9.2.	Service Manual	2 Sets			
3.9.3.	Drawings				
3.10.	Warranty				
3.10.1.	Equipment	One year after delivery on all parts			

LOT 5-13 Multiplex Protein Assays Analyzer (with Software)

Item Code No.	Department	Section	Item Description
LOT 5-13	Diagnostic Laboratories	Transplantation and Genetics	Next Generation sequencing (with Software)

1. General Description

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

3.1.

S/No.	Description	
	Multiplex Protein Array System based on xMAP Technology 3.2. Multiplex Bead based Suspension assay system for detection and analysis of more than 25 proteins, DNA (genotyping, presence absence experiments) and RNA (gene expression, detection) in a single sample at same time. 3.3. System should have LED excitation and CCD as a detector for reporter and classification channels. 3.4. Complete system with all sample processing, acquisition and analysis components and calibration/validation kits included. 3.5. Should be open system with kits and reagents available through multiple vendors. 3.6. Have option to design custom assays for specific application in lab for DNA, RNA and protein detection and analysis. 3.7. Dedicated software for complete acquisition, analysis, calculation, and export of data in publication quality format. 3.8. A branded compatible online UPS (minimum 2 hrs backup) and a compatible Latest computer system with all required software 3.9. Minimum 2year onsite warranty and supply of spares at least for 10 years from the delivery and installation of the equipment. 3.10. Post Warranty CMC guarantee and cost included in the tender for LCC consideration but not and part of the quote. **4. Accessories needed:** 4.1. Branded certified ultrasonic water bath. 4.2. 1.5 ml tube and plate mixer with heating block. 4.3. 2 additional conjugation/coupling kits. 4.4. 2 calibration/verification kits.	

Item Code No.	Department	Section	Item Description
LOT 5-13	Diagnostic Laboratories	Transplantation and Genetics	Next Generation sequencing (with Software)
	4.5. Magnetic separator/ washing block for 96 well flat bottom and conical well plates. 4.6. At least 3 different colour microsphere beads included (minimum 10^6 beads of each colour)		

LOT 5-14 Centrifuge (Non-refrigerated; (and Rotors)

Item Code No.	Department	Section	Item Description
LOT 5-14	Diagonistic Laboratories	Transplantation and Genetics	Centrifuge
1. General Description			
For laboratory use. Table top model			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	The unit should be a model or type on current production		
3.1.2.	Maximum speed	Up to 6000 rpm	
3.1.3.	Maximum RCF	4600G	
3.1.4.	Timer	Provided	
3.1.5.	Brake system	Provided	
3.1.6.	Safety System	Door open	
3.1.7.	Rotor Type	Swing out and fixed angle rotor	
3.1.8.	Tube adapter	4/5 ml, 15ml X 12 pcs	
3.2.	Rotor	2 sets: fixed angle and swing out	
3.3.	Tube adapter	2 Sets for fixed angle and swing out	
3.4.	Rotor locking wrench	2 pieces	
4.	Physical characteristics		
4.1.	Main unit		

Item Code No.	Department	Section	Item Description
LOT 5-14	Diagonistic Laboratories	Transplantation and Genetics	Centrifuge
4.2.	Dimensions	Tabletop model	
5.	Operating environment		
5.1.	Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug, 3m long cord BS type with PE	
5.2.	Ambient temperature	10^{o} C to 40^{o} C	
5.3.			
5.4.	Relative humidity	20% to 90%	
6.	Consumable		
6.1.	Test tubes	Start-up Kits must be provided.	
7.	Quality standards		
7.1.	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1	
7.2.	Conformity to standards	IVD- Directive 98/79/EC, CE and FDA marked	
8.	Local back up service		
8.1.	Available	Should be available locally	
8.2.	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables, and qualified and skilled technical staff	
9.	Delivery point		
9.1.	See Schedule	For inspection and testing	
9.2.	Nil		
10.	Pre installation requirements		
	Nil		
11.	Installation and testing		
	Complete installation and setup of the machine as per manufacturer's instructions		
12.	Training		
12.1.	User Training	On site user training on operation and daily upkeep	
12.2.	Maintenance training	Onsite maintenance training on preventive maintenance	

Item Code No.	Department	Section	Item Description		
LOT 5-14	Diagonistic Laboratories	Transplantation and Genetics	Centrifuge		
13.	Technical documentations				
13.1.	User manuals	2 Sets			
13.2.	Service Manual	1 Set			
13.3.	Drawings	Nil			
14.	Commissioning				
14.1.	Testing and commissioning of the machine to the satisfaction of the user.				
15.	Warranty				
15.1.	Equipment	Minimum of one year after commissioning on all parts.			
15.2.	Equipment System	Nil			
16.	Accessories				

LOT 5-15 Refrigerated Microcentrifuge

Item Code No.	Department	Section	Item Description		
LOT 5-15	Diagnostic Laboratories	Transplantation and Genetics	Refrigerated Microcentrifuge		
1. General Description Refrigerated centrifuge suitable for blood bank in hospitals, Floor mounted type, constructed from robust, corrosion free outer material. Interior part should be constructed from high grade stainless steel. It should be microprocessor based for adjustable temperature, speed, and timer and with inbuilt digital display of process parameters. Able to carry blood bag adapters and tube adapters 4/5ml, 15ml and aerosol cups.					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
3.1.	Main Unit				
3.1.1.	The unit should be a model or type on current production, Floor mounted type				

Item Code No.	Department	Section	Item Description
LOT 5-15	Diagnostic Laboratories	Transplantation and Genetics	Refrigerated Microcentrifuge
3.1.2.	Capacity	4 bucket capacity	
3.1.3.	Refrigeration	CFC free, compressor Type	
3.1.4.	Temperature range	-20^{o}C to+30^{o}C, adjustable	
3.1.5.	Temp accuracy	± 1^{o}C	
3.1.6.	Maximum speed	5000 rpm	
3.1.7.	Maximum RCF	Up to 7000G	
3.1.8.	Timer	Provided	
3.1.9.	Brake system	Provided	
3.1.10.	Safety System	Door open	
3.1.11.	Rotor No.1	Swinging rotor 2X4X1000ml and or 8X 450ml blood bags	
3.1.12.	Rotor No.2	Fixed angle rotor able to spin 4/5ml and 15ml tubes	
3.2.	Rotor locking wrench	2 pieces	
4.	Physical characteristics		
4.1.	Main unit		
4.2.	Dimensions	Floor mounted model	
5.	Operating environment		
5.1.	Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug, 3m long cord BS type with PE	
5.2.	Ambient temperature	10^{o} C to 40^{o} C	
5.3.	Relative humidity	20% to 90%	
6.	Quality standards		
6.1.	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1	
6.2.	Conformity to standards	Directive 2002/98/EC, directive 2004/33/EC, CE and FDA marked	
7.	Local back up service		
7.1.	Available	Should be available locally	
7.2.	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables, and qualified and skilled technical staff	

Item Code No.	Department	Section	Item Description
LOT 5-15	Diagnostic Laboratories	Transplantation and Genetics	Refrigerated Microcentrifuge
8.	Delivery point		
8.1.	See Schedule	For inspection and testing	
8.2.	Nil		

LOT 5-16 Thermocycler complete with UPS

Item Code No.	Department	Section	Item Description
LOT 5-16	Diagnostic Laboratories	Transplantation and Genetics	Thermocycler

1. General Description

Full system with:

a. PCR cabinet/clean bench workstation 1 No
b. PCR plate holders 10 No
c. PCR storage boxes 600 No
d. PCR Cooler 1 No

1.1. Intuitive touch screen — easy programming using a large color touch screen and intuitive interface

1.2. Consistent results — robust design ensures effective and consistent performance run to run

1.3. Easy optimization — this gradient thermal cycler allows fast PCR optimization using a unique thermal gradient

1.4. Easy protocol management — protocols can be organized using personalized folders or a USB flash drive

1.5. Small space-saving footprint — the T100 is a compact thermal cycler that fits in any laboratory

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

3.1. Sample capacity:- 96 x 0.2 ml tubes, 0.2 ml tube strips, or 1 x 96-well plate
3.2. Maximum ramp rate, °C/sec:- 4
3.3. Average ramp rate, °C/sec:- 2.5
3.4. Temperature range:- 4–100°C
3.5. Temperature accuracy:- ±0.5°C of programmed target
3.6. Temperature uniformity:- ±0.5°C well-to-well within 30 sec of arrival at target temperature
3.7. Input power:- 220–240 VAC, 50Hz; 700 W maximum
3.8. Display:- at least 5.7" LCD color touch screen

Item Code No.	Department	Section	Item Description
LOT 5-16	Diagnostic Laboratories	Transplantation and Genetics	Thermocycler

3.9.	Port:-	at least 1 USB A
3.10.	Memory:-	500 typical programs; unlimited with USB flash drive expansion
3.11.	Gradient	
3.12.	Gradient range:-	30–100°C
3.13.	Temperature differential Range	1–25°C

LOT 5-17 Plate Shaker

Item Code No.	Department	Section	Item Description
LOT 5-17	Diagnostic Laboratories	Transplantation and Genetics	Plate Shaker

1. General Description

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

a) Maximum stirring speed-1200 rpm with stepless speed control and good speed stability
b) Heating Capacity - 600W
c) Hotplate Size – at least 175mm dia.
d) Supply – 220/240V,50Hz, A.C
e) Hotplate-Should be chemically resistant to acid and alkali
f) Top Plate Material – Stainless steel
g) Stirring Unit – Should be enclosed so that corrosive fumes do not enter it.
h) Controls for both hotplate and stirrer should be provided with suitable indicators.
i) Necessary electrical cables should be provided.
j) Warranty – minimum 1 year

LOT 5-18 Vortex Mixer

Item Code No.	Department	Section	Item Description
LOT 5-18	Laboratory	Transplantation and Genetics	Vortex Mixer
1. General Description			
2. Composition			
2.1.	Main unit		
3. Description of the medical supply unit design type			
3.1. Speed range 500-3000 rpm, with manually controllable knob 3.2. Acceleration time – 3 sec 3.3. Orbit-2mm. 3.4. Power supply: External power supply DC 12 V, 500mA 3.5. To be supplied with DC adapter if not built in.			

LOT 5-19 DNA quantification Fluorometer

Item Code No.	Department	Section	Item Description
LOT 5-19	Laboratory	Transplantation and Genetics	DNA quantification Fluorometer
1. General Description			
1.1. Specifications for Fluorometer Design: 1.1.1. System should be of user-friendly benchtop design for simple, fast, and highly accurate quantitation of DNA, RNA, and protein. 1.1.2. System should use fluorophore-based detection methods for quantification of DNA/RNA/Protein. 1.1.3. System should use disposable assay tubes that eliminate washing steps and cross contamination between samples. 1.2. Sample Volume: 1.2.1. 1 microliter or less 1.3. Assay: 1.3.1. System should use assays that contain advanced dyes that only fluoresce when bound to DNA, RNA, or protein 1.3.2. Detection should be reasonably fast. 1.3.3. The technology should only report the concentration of the molecule of interest, not contaminants. 1.4. Report: 1.4.1. System should have ability to produce comprehensive data with graphic reports and a .CSV (comma separated value) file for sample comparisons. 1.4.2. Dynamic range: 5 orders of magnitude 1.4.3. Processing time: ≤5 seconds/sample 1.4.4. Light sources: Blue LED (max ~470 nm); Red LED (max ~635 nm)			

Item Code No.	Department	Section	Item Description
LOT 5-19	Laboratory	Transplantation and Genetics	DNA quantification Fluorometer

1.4.5. Excitation filters: Blue 430–495 nm; Red 600–645 nm
1.4.6. Emission filters: Green 510–580 nm; Red 665–720 nm
1.4.7. Detectors: Photodiodes
1.4.8. Measurement capability: from 300–1,000 nm
1.4.9. Warm-up time: <35 seconds
1.4.10. Memory: machine should save at least 1000 reports in inbuilt memory
1.4.11. Additional memory: at least 32 GB USB 3 drive should be provided for transfer of data.
1.4.12. Warranty: At least two years
1.4.13. Maintenance: CMC guarantee for 5 years post CMC. The cost for CMC to be indicated in the bid for LCC consideration.

LOT 5-20 Inverted Microscope

Item Code No.	Department	Section	Item Description
LOT 5-20	Laboratory	Transplantation and Genetics	Inverted Microscope

1. General Description
Live cell imaging System with Research Grade fully motorized inverted Microscope with Digital image capture and analysis software:

1.1. Mechanically rugged and sturdy Motorised Binocular Inverted Microscope for Bright field, Phase, DIC and Fluorescence application with side ports for cameras.
1.2. Motorized 3-step light path switching Binocular 100% / side port 100% / Binocular: side port = 50:50 or 80%:20%
1.3. The system should have left side port for sCMOS camera and a right side/back port/ Trinocular observation head for Color CCD camera or CMOS camera (CMOS camera subject to DEMO)
1.4. TFT/LCD touch screen/ Tablet integrated to the system (This change is agreed by CCMB Subject to condition that bidder provides demo and same is accepted by CCMB after satisfactory DEMO) capable of controlling all motorized functions of microscope.
1.5. The microscope should have the necessary components or accessories required for Bright field, phase, DIC and fluorescence applications.
1.6. Inbuilt Motorized Z focus drive with coarse and fine mechanisms on both sides with 15nm step size or better.
1.7. The system should have an IR based Laser/LED focus drift control module for maintaining focus during long-term time-lapse imaging.
1.8. Motorized Sextuple revolving Objective nose piece with 6 positions with position for DIC slider.
1.9. In built motorized shutter for fluorescence illumination control.

Item Code No.	Department	Section	Item Description
LOT 5-20	Laboratory	Transplantation and Genetics	Inverted Microscope

1.10. Bright LED transmitted Illumination for Phase and DIC with intensity control through touch panel and imaging software.
1.11. Intermediate magnification changer 1.Sx, 2x.
1.12. Eye pieces 1Ox/22 Adjustable
1.13. Objectives for Bright filed, Phase Contrast, DIC and Fluorescence applications:
- Plan Fluor 4X/SX NA 0.13 or better, Phase
- Plan Fluor lOX NA 0.3 or better Phase
- Long working distance Plan semi apochromat/Plan Fluor 20X I NA 0.40 phase or better
- Long WD Plan Fluor 40X /0.6 correction collar & Phase
- Plan Apo 40X NA 0.95 DIC
- 60/63X Plan Apo 1.4 Oil DIC
- 60/ 63x plan Apo 1.2 water
- 100X Plan Apo 1.4 Oil Phase

1.14. Stage: XY motorized stage with joystick/control knobs for X, Y &Z directions, inserts for on stage co, incubator. The stage incubator should accommodate slides, 24 well plates, 96 well plate, 35 mm dish, 60 mm dish and chambered cover glass for multi well, multipoint live cell imaging applications.
1.15. Long working distance Motorized universal condenser NA 0.52 or more with 6 positions for bright field, DIC and phase contrast applications. It should have dedicated slots for DIC prisms for each objective.
1.16. A tiltable/Ergo binocular observation tube with two 10X eyepieces having dioptre adjustment with a minimum 22 FN or better.
1.17. Fluorescence light Source: Stable long-lasting LED/solid state light source with a guaranteed lifetime of minimum 20,000 Hrs. The light source should have independent LED for 365/385/395nm, 430/435/438/445nm, 475/488/490nm, 511/514/525nm, 550/555/561nm, 575/590/594/595nm and 630/635/640nm. The light source should have built in trigger board for fast switching with control card. A remote touch pad to control all the individual lines should be provided. The light source should be controlled by imaging software for fast sequential imaging with a real-time control board that triggers all the lines and the camera in parallel.
1.18. Fluorescence Module: six position or more Motorized filter turret with narrow bandpass notch filters for DAPI, CFP, GFP, YFP, RFP/DsRed, mCherry/Texas Red, CyS and polarizer cube for DIC.
1.19. Real-time Control module: Microsecond precise real-time control board should be able to synchronize the camera exposure time with the precise and fast switching of the LED light to avoid bleaching and photo toxicity. The system should have Analog/Digital 1/0 ports to control the LED light source, camera and third-party hardware such as perfusion system-based experiments.
1.20. Onstage CO, Incubator: Onstage CO, incubator to maintain constant temperature with temperature range of 5 deg C to 45 deg C, humidity and co, control. IT should have a

Item Code No.	Department	Section	Item Description
LOT 5-20	Laboratory	Transplantation and Genetics	Inverted Microscope

touch screen panel to control all the parameters and software to get the data log of all the parameters.

1.21. Cameras:

i. Back illuminated Scientific CMOS monochrome camera with QE of 95% or better, 2Kx2K resolution with a pixel size of less than 6.45micron, cooling: -20 Deg C or more below ambient temperature. The camera should have built in trigger inputs and frame rate of 40FPS or more @2048x2048, 80 FPS or more @2048x1024

ii. 2/3-inch Color CCD camera for image capture, 5 mega pixels, lSFPS or more @2400x1900, USS 3.0 etc. or equivalent color CMOS camera with equivalent specifications (This change is agreed by CCMB Subject to condition that bidder provides demo and same is accepted by CCMB after satisfactory DEMO.)

Both the cameras should be controlled by same software for all applications like image capture, multichannel, tile, time lapse etc

1.22. Software: The imaging software should have an advance multidimensional acquisition, automated multipoint imaging for different sample adapters, camera control and controlling all function of motorized/coded functions of microscope, time lapse recording functions, Tile Scan, video recording functions, automated five dimensional imaging, automated multi-channel fluorescence capturing and merging, fluorescence unmixing, co-localization, wide Field real time De-convolution software module and High Dynamic range imaging. The software should also be equipped with 3D deconvolution, 3D construction volume rendering and co-localization analysis and measurements tools like Measurements, Region and line measurements , Interactive measurements, Automatic exposure time adjustment, colour correction, automatic background correction, live imaging mode with high frame rates and acquisition mode with high resolution, scale bar, Annotation, export of images to Tiff/JPEG format, brightness, gamma and contrast adjustment, different exposure times etc. The software should have all features essential for high end scientific imaging applications.

1.23. Latest branded compute with Xenon processor with 32 GB RAM, DVD Writer, 4TB GB or higher HDD, 27-inch LED digital monitor with 1920x1080 full HD, 2 GB Graphic card, PCI-Express xl. Compatible with half size or Low-profile PCle board. Original Window 10 Operating System (64 Bit), mouse, keyboard, DVD R/W etc ...

Other Important clauses:

- System and accessories should work with 220-240V @ 50 Hz.
- Cost should include on site comprehensive warranty for 2 years on the complete system including LED/solid state light source.
- The service, maintenance and spares parts support should be given for a period of 10 years from the date of installation, the response time for attending a call should be within 24 hours by factory trained service engineer based in Kenya.

Item Code No.	Department	Section	Item Description
LOT 5-20	Laboratory	Transplantation and Genetics	Inverted Microscope

A letter of commitment should be given in this regard from principals' head office.

- The principals/local agents are responsible for the complete installation, testing and integration of the system.
- Application training should be provided for the users for at least two weeks.
- Tools necessary for system calibration like bright filed test slides for bright filed, phase contrast applications, molecular probes test slides for Fluorescence applications should be supplied along with the system.
- Latest software upgrades should be provided free of cost for at least 3 years.
- A Demo of the offered system should be arranged, if required.
- Original literature with complete specifications should be given.
- Publications, users list and references should be provided.

LOT 5-21 Water Purification System

Item Code No.		Department	Section	Item Description
Lot 5-21		Diagnostic Laboratories	Transplantation and Genetics	Water Purification System
1.				
2.	General Description			
	Deionizer for production of pure water for laboratory use. Microprocessor based, compact design water purification system consisting of pre-water treatment, Reverse osmosis, Micro filters and UV treatment.			
3.	Composition			
3.1.		Main unit		
4.	Performance Specifications			
4.1.		Main Unit		
4.1.1.		The unit should be a model or type on current production		
4.1.2.		Capacity	Minimum 8 liters per hour	
4.1.3.		Pretreatment	Provided, filter type, replaceable	
4.1.4.		Reverse Osmosis	Provided, Replaceable Membrane type with pump	
4.1.5.		Micro filter	Provided, Replaceable type	
4.1.6.		UV treatment	Provided, with replaceable lamps	

Item Code No.		Department	Section	Item Description
Lot 5-21		Diagnostic Laboratories	Transplantation and Genetics	Water Purification System
4.1.7.		Pure water quality		
4.1.8.		Conductivity	Maximum 5µs/cm	
4.1.9.		Ionic Rejection	Minimum 95%	
4.1.10.		Bacterial and particles rejection	Minimum 99%	
4.1.11.		Display	LCD display of conductivity and resistivity	
4.2.		Safety devices	Audi and Visual Alarm on water quality, water level, system failure	
5.		Physical characteristics		
5.1.		Main unit		
5.2.		Dimensions	Floor mounted top model	
6.		Operating environment		
6.1.		Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug, 3m long cord BS type with PE	
6.2.		Ambient temperature	10^{o} C to 40^{o} C	
6.3.		Relative humidity	20% to 90%	
7.		Quality standards		
7.1.		Manufacturing standards	IEC 60601-1, ISO 9001, ISO3696, ISO 13485	
7.2.		Conformity to standards	CE marked and FDA approved	
8.		Local back up service		
8.1.		Available	Should be available locally	
8.2.		Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters, and qualified and skilled technical staff	
9.		Delivery point		
9.1.		See Schedule	For inspection and testing	
9.2.		Nil		

Item Code No.		Department	Section	Item Description		
Lot 5-21		Diagnostic Laboratories	Transplantation and Genetics	Water Purification System		
10.		Pre installation requirements				
		Provide for pre installation pipe works and plumbing works				
11.		Installation and testing				
		Complete installation and setup of the machine as per manufacturer's instructions				
12.		Training				
12.1.		User Training	On site user training on operation and daily upkeep			
12.2.		Maintenance training	Onsite maintenance training on preventive maintenance			
13.		Technical documentations				
13.1.		User manuals	2 Sets			
13.2.		Service Manual	1 Set			
13.3.		Drawings	Nil			
14.		Commissioning				
14.1.		Testing and commissioning of the machine to the satisfaction of the user.				
15.		Warranty				
15.1.		Equipment	Minimum of one year after commissioning on all parts.			
15.2.		Equipment System	Nil			

LOT 5-22 Refrigerator (2 to 8 deg)

Item Code No.	Department	Section	Item Description
LOT-5-22	Diagnostic Laboratory	Transplantation and Genetics	Refrigerator
1. General Description			
Refrigerator			
2. Composition			

Item Code No.	Department	Section	Item Description
LOT-5-22	Diagnostic Laboratory	Transplantation and Genetics	Refrigerator
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	Material	Insulated galvanized steel	
3.1.2.	Type	Compressor, electrical	
3.1.3.	Door	Double door, glass type	
3.1.4.	Temperatures range	2 to 8^{o}C stable ± 0.5^{o}C	
3.1.5.	Ambient temperature	10 ^{o} C to 35^{o}C	
3.1.6.	Blood storage capacity	500Litres	
3.1.7.	Shelves	Provided, adjustable and extractable with dividers	
3.1.8.	Temperature monitor	Digital display with temperature record history	
3.1.9.	Control	Electronic, Microprocessor based	
3.1.10.	Refrigerant	CFC free	
3.1.11.	Alarm	Provided, audible and visible	
3.1.12.	Power	240V, 50 Hz, a.c	
4.	Quality standards		
4.1.	Manufacturing standards	ISO 9001, ISO 13485, ISO 14001	
4.2.	Conformity to standards	CE and FDA marked.	
5.	Delivery point		
5.1.	See Schedule	For inspection and testing	
5.2.	Nil		
6.	Warranty		
6.1.	Equipment	Minimum of one year after commissioning on all parts.	
6.2.	Equipment System	Nil	
7.	Accessories		

Item Code No.	Department	Section	Item Description
LOT-5-22	Diagnostic Laboratory	Transplantation and Genetics	Refrigerator
7.1.	Automatic Voltage Regulator (AVR)		
7.1.1.	Capacity	Over VA of the main Unit	
7.1.2.	Input	Ac 240V, 50Hz, Single phase ± 15%	
7.1.3.	Output	Ac 240V, 50Hz, Single Phase ± 2.5 %	

LOT 5-23 Freezer (-20 deg)

Item Code No.	Department	Section	Item Description
LOT 5-23	Diagnostic Laboratories	Transplantation and Genetics	**Laboratory Freezer**
1. General Description			
Laboratory Deep freezer front loading			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	Material	Insulated galvanized steel	
3.1.2.	Type	Compressor, electrical	
3.1.3.	Door	Single door	
3.1.4.	Net storage capacity	350 litres	
3.1.5.	Temperatures range	Up to -30^{o}C	
3.1.6.	Ambient temperature	10 ^{o} C to 45^{o}C	
3.1.7.	Blood storage capacity	About 350 litre	

Item Code No.	Department	Section	Item Description
LOT 5-23	Diagnostic Laboratories	Transplantation and Genetics	**Laboratory Freezer**
3.1.8.	Shelves	Provided, adjustable and extractable	
3.1.9.	Temperature Display	Digital	
3.1.10.	Control	Electronic, Microprocessor based	
3.1.11.	Refrigerant	CFC free	
3.1.12.	Alarm	Provided, audible and visible	
3.1.13.	Power	240V, 50 Hz, a.c	
4.	Accessories		
4.1.	Nil		
5.	Quality standards		
5.1.	Manufacturing standards	ISO 9001, ISO 13485, ISO14001	
5.2.	Conformity to standards	CE and FDA marked	
6.	Delivery point		
6.1.	See Schedule	For inspection and testing	
6.2.	Nil		
7.	Warranty		
7.1.	Equipment	Minimum of one year after commissioning on all parts.	
7.2.	Equipment System	Nil	
8.	Accessories		
8.1.	Automatic Voltage Regulator (AVR)		
8.1.1.	Capacity	Over VA of the main Unit	
8.1.2.	Input	Ac 240V, 50Hz, Single phase ± 15%	
8.1.3.	Output	Ac 240V, 50Hz, Single Phase ± 2.5 %	

LOT 5-24 Ultra-low Freezer (-80^{0}C) and/or liquid nitrogen tank

Item Code No.	Department	Section	Item Description
LOT 5-24	Diagnostic Laboratories	Transplantation and Genetics	Ultra-low Freezer (-80^{0}C) and/or liquid nitrogen tank

1. General Description

Ultralow deep freezer (-80^{0}C)

1.1. **Capacity**: Upright Vertical -80°C deep freezer with 550 litres or above capacity with at least three adjustable compartments of stainless-steel shelves.
1.2. **Interior**: 304L grade SS; Exterior: powder coated finish on heavy duty steel gauge.
1.3. The Operating temperature should be programmable up to -80°C with 1°C increments
1.4. Should work even at ambient temperature of upto 350C.
1.5. **Compressors**: It should have two fully functional compressors (operational at 220-240V, 50 Hz) with 10-year warranty. In case of failure of one compressor, the other compressor should continue to the cooling function.
1.6. Insulation panel should have warranty of 5 years.
1.7. **Refrigerant**: CFC-FREE, HCFC-FREE non-inflammable or eco-friendly natural hydrocarbon refrigerants, Refrigeration system: hermetically sealed cascade refrigeration system.
1.8. Should have provision for CO2/ LN2 backup systems.
1.9. Should have microprocessor based programmable control panel with LED/LCD digital display.
1.10. Should have battery back-up and; audible and visual alarms for temperature, power failure, system failure, battery low etc.
1.11. Noise output should be ≤56 dB.
1.12. Should have Heavy duty lockable castors and lockable outer doors and lids.
1.13. It should be supplied with 5KVA servo voltage stabilizer with HI-LO Cut off on delay and output of 230V+10V.
1.14. Minimum 05 performance certificate of same or equivalent model (-800C) installed only in Government research & educational or autonomous organizations under government within past 5 years should be submitted.

Note: All technical claims of the Bidder should be supported by product catalogue, public website of the manufacturer. The instruments fabricated to the specifications will not be considered. The equipment offered should be a standard model of the company with proven manufacturing quality control and performance track record. Tailor-made equipment models as per specifications will not be considered.

LOT 5-25 DNA Analyzer Equipment

Item Code No.	Department	Section	Item Description
LOT 5-25	Diagnostic Laboratories	Transplantation and Genetics	DNA Analyzer Equipment

1. General Description

DNA Genetic Analyzer Equipment

Item Code No.	Department	Section	Item Description
LOT 5-25	Diagnostic Laboratories	Transplantation and Genetics	DNA Analyzer Equipment

1.1. **Purpose:** DNA Forensics for human identification
1.2. 24-Capillary, fluorescence based capillary electrophoresis system used for genetic analysis.
1.3. Fully automated for polymer loading and replacement.
1.4. DNA separation, detection and data analysis to generate base-called or size-called results
1.5. Integrated 5 & 6-dye chemistry capabilities
1.6. **PCR Plate format:** 8-tube standard and fast strips as well as 96 well standard and fast strips and 384- well plates.
1.7. **LASER:** single-line, solid-state, long-life 505 nm laser that utilizes a standard power supply and requires no heat removal ducting.
1.8. **Thermal systems:** Designed to improve temperature control and can maintain temperatures from 18 to 70 degrees C.
1.9. **Radio Frequency Identification (RFID) technology:** allow tracking and reporting of the consumable usage, lot and part numbers, expiration dates, and on-instrument lifetime through the instrument operation software.
1.10. **Instrument consumables:** instrument designed with pre-packaged, single-use consumables; Performance Optimized Polymer 4, buffer containers for anode and cathode solutions.
1.11. **Computer Specifications**: Latest Computer Workstation with a flat-screen monitor of at least 19'': **Hard Drive:** 2x 1TB SATA 3.0 Gb/s and 16 MB Data Burst Cache, **Memory:** 16 GB (2x 8GB) 1600 MHz DDR3 Non-ECC. 5th Gen Intel Core I7 Processor- 3.1 GHz Turbo Processor, the instrument to work with a workstation running the latest windows operating system.
1.12. **Instrument Operating Environment:** Humidity: 20%-80% (non-condensing), Room temp: <2° fluctuation during runs, Temperature: 15°C-30°C
1.13. The genetic analyzer system fits should be in standard ABIF format which must be reviewed on a windows computing system. Sample files should be compatible with secondary analysis applications for post processing such as sequence analyzing V514 van ant report V1.1, Gene mapper ID –X V1.6 data collection V5.4 SOFTWARE PROGRAMES.
1.14. The genetic analyzer capillary arrays should be designed to detect and analyze six fluorescent dyes simultaneously for DNA Fragment analysis
1.15. The genetic analyser capillary arrays should be designed for at least 150 injections.
1.16. The genetic analyser should be designed to support human identification applications using POP-4 Polymer and at least 36cm arrays.
1.17. **Electrophoresis voltage limit**: up to 20Kv
1.18. **Dimensions:** Use less lab bench space with not more than a width of 65cm (closed door) and not more than 125 cm (open door); a depth of not more than 65 cm and height of 75cm
1.19. **Installation:** System installation and basic operator training performed by an authorized service engineer, together with reagents and consumables for system

Item Code No.	Department	Section	Item Description
LOT 5-25	Diagnostic Laboratories	Transplantation and Genetics	DNA Analyzer Equipment

qualification for DNA/Human Identification (HID) forensics. End user training on instrument and software for DNA forensics for at least four people.

2. SOFTWARE

2.1. Integrated software for instrument control, data collection, quality control and auto analysis of data.

2.2. System software should be designed with the ability to perform Chemistry checks to verify that the system meets the specifications, conforms to fragment analysis or HID sizing precision sizing range and peak height specifications.

2.3. The system software should be designed with wizards for easy instrument maintenance operations automatic notifications and tracking of performed tasks, and calendars functionality for scheduling tasks.

2.4. The system software should include optional features to support security audit trail and signature features that assist with ISO 17025 requirements.

Supply of the instrument should include:

a) Installation and commissioning, Application training and after sales technical support services be provided
b) Remote technical Support
c) A 10 KVA uninterrupted power supply system.
d) Warranty: At least two-year and 5 years post warrant CMC guarantee

LOT 5-28 Flow Cytometer

Item Code No.	Department	Section	Item Description
LOT 5-28	Laboratory	Transplantation and Genetics	Flow Cytometer
1. General Description			
Application/Scope For cells and microorganisms counting			
2. Composition			
2.1.	Main unit		
3. Description of the medical supply unit design type			

Item Code No.	Department	Section	Item Description
LOT 5-28	Laboratory	Transplantation and Genetics	Flow Cytometer

3.1. The flow cytometer should be easy to use, simple to maintain, and affordable.
3.2. Should be small enough to easily fit on a benchtop.
3.3. The system should be equipped with appropriate lasers, appropriate scatter detectors, appropriate fluorescence detectors.
3.4. Should be compact optical design, fixed alignment, and pre-optimized detector settings to make the system easier to use.
3.5. Should have a unique pumping system that drives the fluidics.
3.6. The accessory should be able to streamline sample processing with reliable and easy-to- use automation.
3.7. The software should be appropriately designed to provide quick access to the collection, analysis, and statistics functions. The Analysis should be performed easily with the internal system and should also be able to be processed to appropriate third-party programs.

Performance Specifications

Optics • Laser power (as shown in table below)

Laser	Wavelength (nm)	Beam-shaping optics (BSO) (mW)	Diode power (mW)
Violet	405	50	100
Blue	488	50	100
Green	532	100	140
Yellow	561	50	100
Red	637	100	140

- **Laser excitation:** Optimized excitation for minimized stray laser-line noise and losses to reflection
- **Laser profile:** 10 x 50 μm flat-top laser providing robust alignment
- **Emission filters:** Up to 14 color channels with wavelength-tuned photomultiplier tubes (PMTs); user changeable, keyed filters
- **Laser separation:** 150 μm
- **Optical alignment:** Fixed alignment with pre-aligned welded fiber; no user maintenance required
- **Onboard thermoelectric cooler:** No warm-up delay; fiber is not affected by on/off
- **Simmer mode:** Instant on/off reduces usage and/or aging by 10x; only keep it "on" when acquiring samples; reports hours of usage
- **Flat top specified at the flow cell:** Coefficient of variation (CV) <3% over width of flat top
- Upgradable according to field changes

Fluidics

Flow cell: Quartz cuvette gel coupled to 1.2 numerical aperture (NA) collection lens, 200 x 200 μm

Sample analysis volume: 20 μL to 4 mL

Custom sample flow rates: 12.5–1,000 μL/min

Sample delivery: Positive-displacement syringe pump for volumetric analysis.

Item Code No.	Department	Section	Item Description
LOT 5-28	Laboratory	Transplantation and Genetics	Flow Cytometer

Sample tubes: Accommodates tubes from 17 x 100 mm to 8.5 x 45 mm. Should be able to handle a food, meat, fish sample for analysis.
Fluid-level sensing: Should be Active.
Standard fluid reservoirs: Should have 1.8 L focusing fluid tank, 1.8 L waste tank, 175 mL shutdown solution tank, and 175 mL wash solution tank
Fluid storage: All fluids should be stored within instrument
Extended fluidics option: Configuration for 10 L fluid Nominal fluid consumption Should be 1.8 L/day
Automated maintenance cycles: ≤15 min startup and shutdown—deep clean, sanitize, and debubble modes

Performance
Fluorescence sensitivity: ≤80 molecules of equivalent soluble fluorochrome (MESF) for FITC, ≤30 MESF for PE, ≤70 MESF for APC
Fluorescence resolution: CV <3% for the singlet peak of propidium iodide–stained chicken erythrocyte nuclei (CEN)
Data acquisition rate: Up to 35,000 events/sec, 34 parameters, based on a 10% coincidence rate per Poisson statistics
Maximum electronic speed: 65,000 events/sec with all parameters
Carryover: Single-tube format: <1%
Forward and side scatter sensitivity: Able to discriminate platelets from noise
Forward and side scatter resolution: Optimized to resolve bacteria and fungi in Food and feed products, meat/fish and
meat products, and water matrices
Forward scatter: Photodiode detector with 488/10 nm bandpass filter
Side scatter:
PMT with default 488/10 nm bandpass filter; optional 405/10 nm bandpass filter
Fluorescence detectors: 14 individual detectors
Electronic pulse: Measured area, height, and width pulse for all detectors
Violet side scatter resolution: Can be configured for violet side scatter to better resolve particles from noise.
Minimum particle size: 0.2 μm on side scatter using Recommended calibration kit

Automation
Fully automated cleaning cycles
Fully automated start-up and shutdown
Autosampler option for labs where throughput and automation are a priority
Email alerts notify operator of status changes
Volumetric sample system gives absolute count for every sample
Flexibility
Fully upgradeable to a 4-laser system with 12 optical detectors plus Autosampler
Suitable for a wide range of applications (maximum particle size 100μm)

Sorting
The cytometer should be equipped with a sorting feature for capturing and collecting cells of interest.

Item Code No.	Department	Section	Item Description
LOT 5-28	Laboratory	Transplantation and Genetics	Flow Cytometer

All the accessories associated to the flow cytometer
All reagents and materials to be used in and by the Flow cytometer
All spares accompanying the flow cytometer
Should have all Installation Requirements covered as appropriate.

Data Management Requirements
64-bit Windows 8 or later
Minimum screen resolution 1280x1024
16 GB RAM
Min 1TB hard disk space
Workstation Minimum Specifications
Small form chassis
Intel® HD Graphics 2000
180-W Energy Star efficient internal power supply
Memory and Processor
16 GB RAM
Core™ i7 processor

Hard Drive and Data Storage Options
1TB or greater hard drive, 8-MB databurst cache
8x DVD reader
Monitor
LCD flat panel 21"
4 USB 2.0 ports (for peripheral devices) Peripheral Devices
USB Entry Keyboard
USB Optical Mouse
Networking
Ethernet LAN 10/100/1000
Operating System should be appropriate and compatible

Other requirements

(i) During Quotation opening the selected suppliers to be available to give a summary the equipment to be supplied.
(ii) Installation and Commissioning -to be done
(iii) Operation and Service Manuals- All Manuals in English (Hard and soft copy)
(iv) Warranty and Nearest service center -Two years warranty with one year spare replacement, if required.
- Post warranty CMC provision for at least 5 years
- Brochures for the equipment to be provided during quotation

(v) Training - onsite training during installation/ commissioning and at least 10 test runs. The trainer should have all the is required for training to ensure full training.

LOT 5-29 Bacteriology workflow Biosafety Cabinet

Item Code No.	Department	Section	Item Description
LOT 5-29	Laboratory	Microbiology and Parasitology	Biosafety Cabinet with stand
1. General Description			
Biosafety cabinet, mobile on four antistatic castors. Class II, type A, microprocessor controlled with digital display, UV light, and laminar air flow			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	Application	Capable of providing protection for personnel, environment and product, Class II, Type A	
3.1.2.	Construction	Front open type, with laminar flow, ventilated cabinet and exhaust fan	
3.1.3.	Sterilization	UV light	
3.1.4.	Exhaust	Exhaust fan, low noise operation	
3.1.5.	Ventilation	Mass air flow; recirculation and exhaust; constant velocity	
3.1.6.	Filtration	HEPA filter, replaceable	
3.1.7.	Display	LCD display of Air flow, UV light indicator,	
3.1.8.	Safety class	Class II, Type A	
4.	Physical characteristics		
4.1.	Main unit	About 1.2 meters (4ft)	
5.	Operating environment		
5.1.	Power Requirements	240V, A/c 50 Hz, Single phase, with PE	
	Ambient temperature	10^{o} C to 40^{o} C	
	Relative humidity	20% to 90%	
6.	Quality standards		
6.1.	Manufacturing standards	ISO 13485, ISO 9001, ISO 14001	

Item Code No.	Department	Section	Item Description		
LOT 5-29	Laboratory	Microbiology and Parasitology	Biosafety Cabinet with stand		
6.2.	Product conformity standards	NSF/ANSI 49			
	Conformity to standards	CE and FDA marked			
7.	Local back up service				
7.1.	Available	Should be available locally			
7.2.	Capacity to service equipment	Agent shall have adequate facilities, spare parts, and qualified and skilled technical staff			
8.	Delivery point				
8.1.	See Schedule	For inspection, installation, testing and commissioning			
	Nil				
9.	Installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
10.	Training				
10.1.	User Training	On site user training on operation and daily upkeep			
10.2.	Maintenance training	Onsite maintenance training on preventive maintenance			
11.	Technical documentations				
11.1.	User manuals	2 Sets			
11.2.	Service Manual	1 Set			
12.	Commissioning				
12.1.	Testing and commissioning of the machine to the satisfaction of the user.				
13.	Accessories				
13.1.	Automatic Voltage Regulator (AVR)				

LOT 5-30 Automated blood Culture System

Item Code No.	Department	Section	Item Description
LOT 5-30	Diagnostic Laboratories	Microbiology and Parasitology	automated blood Culture System

1. General Description

AUTOMATED BLOOD CULTURE SYSTEM

1.1. Fully automated system capable of culture of blood and sterile body fluids for bacteria (aerobes and anaerobes), fungi in the same system.
1.2. >100 cells upgradable to additional cells.
1.3. Growth detection by noninvasive colorimetric/non radiometric methods for biosafety of lab workers.
1.4. Both blood, Sterile body fluids for culture from all samples must be FDA/CE / Equivalent approved for the system
1.5. Should have built in calibration check/facilitate calibration.
1.6. Quality control measures should be clearly defined.
1.7. System should have specific algorithms for detection of growing microorganisms and should be capable of continuous monitoring of all samples for growth of microorganisms.
1.8. System "should be having continuous agitation and incubation mechanism to provide optimal growth of microorganisms
1.9. The bottled media should be capable of neutralizing effect of antibiotics
1.10. System should be capable of processing both adult and pediatric samples.
1.11. System should have interface for lab information system
1.12. System should have an external computer/touch screen monitor and laser deskjet printer and barcode reader.
1.13. Should be capable of exporting data to drive for long term storage.
1.14. All electrical peripherals required for smooth functioning e.g. voltage stabilizer and UPS should be provided with the equipment.
1.15. Supplier must ensure local servicing agent and continuous supply of consumables.
1.16. Should be supplied with a starter kit/pack with QC material and calibrators
1.17. Must provide installation, training, testing and verification; the shall be done by the vendor
1.18. At least 2 years warranty required. CMC for 5 years.

LOT 5-32 Aerobic/Anaerobic Bacterial and Fungal Identification System

Item Code No.	Department	Section	Item Description
LOT 5-32	Diagnostic Laboratories	Microbiology and Parasitology	Aerobic/Anaerobic Bacterial and Fungal Identification System

1. General Description

Automated Microbial identification with Phenotypic characterization and Antibiotic Susceptibility Testing system (for identification of Aerobic and Anaerobic bacteria, yeast, and fungi)

Technical Specification – Essential Features

1.1. The microbial identification system should be sensitive and reliable in detection, identification of microorganisms
1.2. System should be fully automated for microbial identification and sensitivity testing
1.3. System should be based on reliable and proven technology for identification of gram positive and gram-negative bacteria, aerobic and anaerobic and fastidious bacteria with highest discriminative between species.
1.4. System should be able to identify Gram negative, gram positive and anaerobic, bacteria, yeast as well as fungi at species level and should have a large database covering at least 3000 species (for bacteria, yeast and fungi)
1.5. Appropriate Data Management Software should be provided for processing, interpretation, quality control, reporting and data management of Gram-positive and Gram-negative bacteria, aerobic/anaerobic, yeast,.
1.6. System should have the facilities for:
    1.6.1. Detection of MIC value and antibiotic resistance bacteria.
    1.6.2. Warning of any unusual resistance mechanism
1.7. The system must have the capacity to run at least 30 tests at a time (either Identification or AST (Antimicrobial Susceptibility Test) alone or in combination)
1.8. System should have reader and built-in incubator for incubating/reading the plates/test panels/ cards.
1.9. It should have features for cluster analysis and creation of user database for additional microbial species.
1.10. System should be supplied with a minimum 25 nos. of plates/test panels/cards and related consumables for identification of aerobic gram negative and gram-positive bacteria, anaerobic bacteria, yeast, fungi, and microbial community analysis.
1.11. System should be supplied with software for Data collection, File Management, Kinetic and Parametric analysis for characterization of microbial cells.
1.12. Operating Temp Range and Operating Humidity Range with non-condensing range should be provided.
1.13. Concomitant accessories and a printer should be supplied free of cost.
1.14.
1.15. Starter kit for installation and comprehensive training of lab staff to be provided free of cost. List of additional reagents required should be provided along with tender documents.
1.16. Electrical Supply: 230-240 VAC, 50 Hz
1.17. Operating temperature range: 18^0 C to 30^0 C and above

Item Code No.	Department	Section	Item Description
LOT 5-32	Diagnostic Laboratories	Microbiology and Parasitology	Aerobic/Anaerobic Bacterial and Fungal Identification System

1.18. Operating Humidity Range: 20% to 80% non-condensing.
1.19. Incubation Temperature Range: 20˚ to 45˚C
1.20. Temp Consistency: up to ±2˚C in the incubation chamber
1.21. Temperature Indication on display
1.22. System should be provided with a computer of appropriate configuration and should be pre-loaded with all necessary software.
1.23. US–FDA / CE approved equipment shall be preferred.
1.24. Testing lab consumables for bacteria, yeast and mould identification and its methods shall be approved by international regulatory authorities like KEBS, etc.
1.25. Warranty: at least two year and CAMC 5 years
1.26.

LOT 5-37 BSL-II (Laminar Flow Hood)

Item Code No.	Department	Section	Item Description
LOT 5-37	Diagnostic Laboratories	Microbiology and Parasitology	Laminar Flow Hood
1. General Description			
Biosafety cabinet, mobile on four antistatic castors. Class II, A, microprocessor controlled with digital display, UV light, and laminar air flow			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	Application	Capable of providing protection for personnel, environment and product, Class II, Type A	
3.1.2.	Construction	Front open type, with laminar flow, ventilated cabinet and exhaust fan	

Item Code No.	Department	Section	Item Description
LOT 5-37	Diagnostic Laboratories	Microbiology and Parasitology	Laminar Flow Hood
3.1.3.	Sterilization	UV light	
3.1.4.	Exhaust	Exhaust fan, low noise operation	
3.1.5.	Ventilation	Mass air flow; recirculation and exhaust; constant velocity	
3.1.6.	Filtration	HEPA filter, replaceable	
3.1.7.	Display	LCD display of Air flow, UV light indicator,	
3.1.8.	Safety class	Class II, Type A	
4.	Physical characteristics		
4.1.	Main unit	About 1.2 meters (4ft)	
5.	Operating environment		
5.1.	Power Requirements	240V, A/c 50 Hz, Single phase, with PE	
	Ambient temperature	10^{o} C to 40^{o} C	
	Relative humidity	20% to 90%	
6.	Quality standards		
6.1.	Manufacturing standards	ISO 13485, ISO 9001, ISO 14001	
6.2.	Product conformity standards	NSF/ANSI 49	
	Conformity to standards	CE and FDA marked	
7.	Local back up service		
7.1.	Available	Should be available locally	
7.2.	Capacity to service equipment	Agent shall have adequate facilities, spare parts, and qualified and skilled technical staff	
8.	Delivery point		
8.1.	See Schedule	For inspection, installation, testing and commissioning	
	Nil		

Item Code No.	Department	Section	Item Description
LOT 5-37	Diagnostic Laboratories	Microbiology and Parasitology	Laminar Flow Hood
9.	Installation and testing		
	Complete installation and setup of the machine as per manufacturer's instructions		
10.	Training		
10.1.	User Training	On site user training on operation and daily upkeep	
10.2.	Maintenance training	Onsite maintenance training on preventive maintenance	
11.	Technical documentations		
11.1.	User manuals	2 Sets	
11.2.	Service Manual	1 Set	
12.	Commissioning		
12.1.	Testing and commissioning of the machine to the satisfaction of the user.		
13.	Accessories		
13.1.	Automatic Voltage Regulator (AVR)		

LOT 5-38 Fume Chamber

Item Code No.	Department	Section	Item Description
LOT 5-38	Laboratory	Microbiology and Parasitology	Fume Chamber
1. General Description			
External Dimensions (W x D x H) ft	6 x 3 x 7 or more (for 6 ft fume hoods). 8 x 3 x 7 or more (for 8 ft fume hoods).		
Material of construction (Exterior and Interior)	Chemical resistant heat resistant and fire-retardant epoxy resin coated durable steel fabrication. Interior fabrication must meet ASTM flame		
	spread index <25.		

Item Code No.	Department	Section	Item Description
LOT 5-38	Laboratory	Microbiology and Parasitology	Fume Chamber
Sash (Shutter)	a. Vertical rising movement operated using rope pulley mechanism. b. Clear operable height 2.5 ft or better c. Transparent thick tempered safety glass (toughened) 5 mm or more. Minimum withstand pressure 15,000 psi (testing certificate must be provided). d. Liner around the glass corners and handle (12 cm or more) should be provided in the middle to operate sash up/down.		
Worktop	a. Black granite top thickness 18 mm or more. b. Mounted cup sink (MOC PP) at left back corner for waste collection.		
Design	a. Two-piece adjustable baffle to direct airflow. b. Tap water supply cock placed on inside left panel and nozzle tapered to fit ¼ to ½ inch tubing. c. Aerodynamic airfoil design (For A.C. environment). d. Holding grid 5 ft wide x 4 ft height for clamping (for 6 ft) and holding grid 8 ft wide x 4 ft height for clamping (for 8 ft). MOC chemical resistant coated steel. e. Vapor/explosion proof fluorescent lighting with proper illumination (Two Nos. 780 lux or more LED lights). f. Control valve to regulate airflow.		
Right side fixture panel	a. Digital LCD display air flow meter/monitor including alarm (AFA 1000) with soft touch switches. b. Blower ON/OFF switch MCB type and built-in starter. c. Switch control for tube light and fan ON/OFF switch d. Two Nos. 230-volt AC receptacles with control switch arranged vertically. e. Three colored service fixtures for supply of compressed air, Nitrogen gas and cold water (degree nozzle type). MOC brass powder coated fittings and nozzle tapered to fit ¼ to ½ inch tubing. f. Three additional provisions for future establishments.		
Left side fixture panel	a. Two Nos. 230-volt AC receptacles with control switch arranged vertically. b. Three colored service fixtures for supply of compressed air, Nitrogen gas and cold water (degree nozzle type). MOC brass power coated fittings and nozzle tapered to fit ¼ to ½ inch tubing. c. Three additional provisions for future establishments.		
Blower & Duct	a. Roof top remote blower (centrifugal force). Zero pressure weather cap. 600 cfm confirming to international face velocity norms and as per safe fume hood airflow pattern. b. 2.0 HP or more (3 phase) to operate combined two 6 ft fume hoods. As per IS 325. c. Two propylene (PP) bell-mouthed duct collar located on the top of the hood chamber (both 6 ft and 8 ft).		

Item Code No.	Department	Section	Item Description
LOT 5-38	Laboratory	Microbiology and Parasitology	Fume Chamber
	d. Duct MOC fire resistant, chemical resistant PP plus FRP.		
Cabinet	a. Two cabinets of size 3 H x 3 W ft size each (for 6 ft fume hood) and two cabinets of size 3 H x 4 W ft size each (for 8 ft fume hood) with removable horizontal partition. b. Interior MOC chemical resistant powder-coated/lining steel fabrication, fireproof pre-lam/chipboard cabinet. c. Proper or magnetic locking of doors. d. Two separate exhaust ports connected to the fume hood exhaust system internally.		
Exhaust system	Exhaust should be smooth without any turbulence and noise level <70 db (at 1 meter from fume hood)		
Miscellaneous	a. Venders will be responsible for FRP ducting to duct out fume hood (duct length should be quoted separately). b. Must meet ASHRAE 110-95 and other necessary standards for proper functioning. c. Each fume should have its own control for operation.		

LOT 5-39 CO2 Anaerobic Incubator

Item Code No.	Department	Section	Item Description
LOT5-39	Diagnostic Laboratories	Microbiology and Parasitology	Water Jacketed CO2 Anaerobic Incubator
1. General Description			
1.1. Item Specifications: - 1.2. Capacity: 6.0 cu. ft. / 170 Lt. or more 1.3. Co2 range: 0.2-20%, with ±0.1% control 1.4. Co2 stability at 5% Co2: ±0.2% stability. 1.5. Co2 uniformity: ±0.1% 1.6. Temperature range: 4°C above ambient to 50°C with temp control: ±0.1°C			

Item Code No.	Department	Section	Item Description
LOT5-39	Diagnostic Laboratories	Microbiology and Parasitology	Water Jacketed CO2 Anaerobic Incubator

1.7. Temp stability at 37°C: ±0.1°C
1.8. Temp uniformity: ±0.3°C
1.9. Six-Sided Direct Heating to ensure stable temperature control, excellent uniformity, and rapid recovery with no overshoot.
1.10. Large Display & Intuitive Controls Simplify Operation. Features help text, real-time data graphing, programmable alarms, diagnostics & more.
1.11. Fanless design & Ductwork to increase usable chamber space & simplified cleaning. Gentle, fanless convection circulation to provide perfect chamber homogeneity, and to eliminate vibration & reduced sample evaporation.
1.12. Infrared [IR] CO2 Sensor to provide superior accuracy and stability over conventional thermal-conductivity sensors.
1.13. High Humidity – Dry Wall Chamber to achieve 95% RH, minimizing sample evaporation. Independent door heater to eliminate condensation on inner glass surfaces.
1.14. 72-Hour Data Storage. CO2 concentration, temperature, alarms and door openings to record automatically for on-screen display. Optional communications package to enable data logging to PC to quote separately.
1.15. High-Temperature Decontamination Mode to simplify Maintenance. System should be able to use 120°C dry heat to decontaminate the chamber, all internal sensors, racks & humidity pan.
1.16. CO2 Sensor Auto-Zero to adjust baseline automatically for optimum accuracy. User-programmable. Should not require any manual measurements or operator intervention.
1.17. Seamless Chamber, Rounded Corners, and external front flange to prevent contamination and simplify cleaning.
1.18. Easily Removable Shelving (Four shelves). Stainless rack & shelves should be quickly removable, without tools.
1.19. Built-In System Diagnostics to help identify system status & expedite on-site service.
1.20. Comprehensive Two-Level Alarm System to include audio and screen-displayed alarms for system status, with programmable alarms for CO2 and temperature set points, delays & duration.
1.21. Password Protection to ensure the integrity of all programmable system settings.
1.22. Separate Over-Temperature Cutout to prevent over-heating condition, in event of a control failure.
1.23. Non-Volatile Memory to guarantee data integrity, regardless of length of time or frequency of power interruption.
1.24. Alarm Set points to Reset Automatically to ±0.5ºC and 0.5% above and below the new temperature/CO2 set point.
1.25. HEPA Filter on CO2 Inlet to provide added protection from potential contamination sources.
1.26. RS 323 port for communication.
1.27. Preferable a trained service engineer in Kenya

Item Code No.	Department	Section	Item Description
LOT5-39	Diagnostic Laboratories	Microbiology and Parasitology	Water Jacketed CO2 Anaerobic Incubator

1.28. Suitable Servo Voltage Stabilizer, Co2 gas cylinder with 30kg Co2 gas, Two-Stage QC mark CO2 Gas Regulator should be supplied along with instrument.
1.29. Optional Items
1.30. Optional Stacking kit to stack 2 units one upon another.

LOT 5-40 Aerobic Incubators

Item Code No.	Department	Section	Item Description
LOT 5-40	Diagnostic Laboratories	Microbiology and Parasitology	Aerobic Incubators

1. General Description

A laboratory incubator is a heated, insulated box used to grow and maintain microbiological or cell cultures. The incubator maintains optimal temperature, humidity and gaseous content of the atmosphere inside

Requirements or technical specifications include but are not limited to the following;

1.1 Should be made of double –walled chamber
  1.1.1 Inner wall made of stainless steel 304 grade
  1.1.2 Powder coated outer surface
1.2 Should have air circulating fan
1.3 Must be fitted with a variable microprocessor based digital temperature control system with digital display.
1.4 Should have at least three heating elements on the three sides of the equipment for uniform temperature control on all shelves
1.5 Should operate within a temperature range of 50^{O}C to 200^{O}C
1.6 Should be fitted with air ventilators
1.7 Should have air circulating fan.

Either bench or floor standing

2. Composition

3.1 Chamber size should at least be 450 X 450 X 450 (Length X Breath X Height)
3.2 Should be delivered with at least two stainless steel trays with holes.
3.3 Power requirement should be 220 - 240 V

3. **Manufacturing standards** IEC 60601-1, ISO 13485.
4. **Conformity to standards** IVD- Directive 98/79/EC (IEC 1010-1),CE and FDA marked

5. Maintenance

6.1 Operators and Biomedical Engineers must be trained by the supplier
6.2 Operator and service manuals written in English to be availed at the installation work station

Item Code No.	Department	Section	Item Description
LOT 5-40	Diagnostic Laboratories	Microbiology and Parasitology	Aerobic Incubators
6.3 A service contract to be entered between the supplier and procuring entity to last at least three years post warranty period.			

LOT 5-41 Autoclave

Item Code No.	Department	Section	Item Description		
LOT 5-41	Diagnostic Laboratories	Microbiology and Parasitology	Autoclave, Laboratory 80 litres		
1. General Description					
Automatic, microprocessor-controlled steam sterilizer suitable for sterilization of wrapped, unwrapped instruments and hollow laboratory loads. The autoclave should be vertical type and constructed from double walled high-grade stainless-steel materials and a sterilizer chamber capacity of about 80 litres					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
3.1.	Main Unit				
3.1.1.	Application	For sterilization of; - Wrapped and unwrapped instruments - Pipette and glasses - Liquid sterilization			
3.1.2.	Sterilization agent	Saturated steam with inbuilt steam generator			
3.1.3.	Sterilization cycle	Fully automatic with Pre – vacuum, heating (steam pulsating), sterilization (holding), post vacuum (drying). With inbuilt printer capable of printing each successful sterilization cycle			
3.1.4.	Sterilization temperature range	105^{o}C to 137^{o}C, selectable programs for different kind of laboratory loads			
3.1.5.	Pressure equalization	By sterile HEPA filter, replaceable			
3.2.	Sterilization chamber design and capacity	Cylindrical vertical type, about 80 litres, approx. Ø 38 cm X 70 cm deep, all high-grade stainless-steel construction			
3.2.1.	Sterilization Chamber door	Fully automatic, with safety interlock, top opening, and loading			

Item Code No.	Department	Section	Item Description
LOT 5-41	Diagnostic Laboratories	Microbiology and Parasitology	Autoclave, Laboratory 80 litres
3.3.	Control unit	Microprocessor based controlling all operational cycles With large LCD or similar display of cycle progress i.e. temperature, pressures and time. With different programmable cycle programs for different type of loads. With facilities for calibration.	
3.4.	Steam generator	In built, Electrical heating single phase 240V, 50 Hz	
3.5.	Water to steam generator	Distilled water or equivalent water to safeguard heating element.	
3.6.	Printer	In built printer capable of printing each successful cycle. Preferable thermal printer	
3.7.	Safety features	The autoclave should have major safety features such as:	
		Safety pressure relief valve, overheating protection	
		Door lock under pressure	
4.	Physical characteristics		
4.1.	Main unit	Vertical type design	
5.	Operating environment		
5.1.	Power Requirements	240V, A/c 50 Hz, Single phase, with PE	
	Ambient temperature	10^{o} C to 40^{o} C	
	Relative humidity	20% to 90%	
6.	Accessories	The following accessories will be provided as startup kits.	
	Stainless steel wire basket	At least 3 assorted sizes	
	Stainless steel container	At least 2 assorted sizes	
6.1.	Printing papers	10 Rolls	
7.	Quality standards	A.S.M.E. Code, Section VIII div.1 for unfired pressure Vessels, UL61010-1 Safety for Electrical Equipment for Measurement, Control, and Laboratory Use, General Requirements. UL61010-2-041 Particular Safety for Autoclaves.	

Item Code No.	Department	Section	Item Description
LOT 5-41	Diagnostic Laboratories	Microbiology and Parasitology	Autoclave, Laboratory 80 litres
7.1.	Manufacturing standards	EN ISO 9001:2008– Quality System ISO 13485:2003 – Quality systems – Medical devices	
	Conformity to standards	CE and FDA marked.	
8.	Local back up service		
8.1.	Available	Should be available locally	
8.2.	Capacity to service equipment	Agent shall have adequate facilities, spare parts, and qualified and skilled technical staff	
9.	Delivery point		
9.1.	See Schedule	For inspection, installation, testing and commissioning	
10.	Pre installation works		
	Nil		
11.	Installation and testing		
	Complete installation and setup of the machine as per manufacturer's instructions		
12.	Training		
12.1.	User Training	On site user training on operation and daily upkeep	
12.2.	Maintenance training	Onsite maintenance training on preventive maintenance	
13.	Technical documentations		
13.1.	User manuals	2 Sets + soft	
13.2.	Service Manual	2 Sets + soft	
14.	Commissioning		
14.1.	Testing and commissioning of the machine to the satisfaction of the user.		

LOT 5-42 Hot Air Oven

Item Code No.	Department	Section	Item Description
LOT 5-42	Diagnostic Laboratories	Microbiology and Parasitology	Hot Air Oven
1. General Description			

Item Code No.	Department	Section	Item Description
LOT 5-42	Diagnostic Laboratories	Microbiology and Parasitology	Hot Air Oven

1.1. Specification of Hot Air Oven 90-120 Ltr.
1.2. Programmable Microprocessor control with vacuum fluorescent/LED display
1.3. Capacity: 90-120 liters.
1.4. Exterior in mm less than (W x H x D):650 x 850 x 600
1.5. Broad temperatures range 50 to 250°C
1.6. Temperature Uniformity/Deviation at 150°C:±0.5°C
1.7. Stainless steel perforated shelf at least: 3-4
1.8. Machine should have to 2 PT-100 Sensor for Sample protection.
1.9. Inner chambers corrosion-resistant stainless steel 1.4016/AISI 430 with rounded corners for easy cleaning.
1.10. Automatic over temperature alarm system to protect samples.
1.11. Access port allows the introduction of sensors for independent data monitoring system.
1.12. Ovens should come standard with a RS232 data interface.
1.13. Machine should have an optional facility for wireless temperature monitoring.
1.14. Compatible servo stabilizer for the Machine.
1.15. Warranty: at least 2 years

LOT 2-43 Analytical Balance

Item Code No.	Department	Section	Item Description
LOT 2-43	Laboratory	Routine	Analytical Balance

1. General Description

Analytical electronic balance (Precision Weighing Balances)

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

Technical Specifications

3.1. Capacity x Readability: 220 g x 0.01 mg;
3.2. Repeatability: 0-60g ± 0.015 mg / 60-220g ± 0.25 mg;
3.3. Linearity: ± 0.1 mg;
3.4. Corner Load (g) : ± 0.15 mg (100 g) (Test Load [g]);
3.5. Minimum Sample Weight (mg): 20 mg minimal initial weighing;
3.6. Tare Range: 0.01mg to minimum of 220 g;
3.7. Stabilization Time (avg): < 2 second;
3.8. Response Time (avg): < 6 second;
3.9. Sensitivity Drift: 10°-30°C: ± 1 ppm / °C;
3.10. Selectable Weight Units: g, kg;
3.11. Touch Screen, Keys for main basic functions;
3.12. Adjustment of the display and control unit.

Item Code No.	Department	Section	Item Description
LOT 2-43	Laboratory	Routine	Analytical Balance

3.13. 8 No. selectable application programs: Mass unit conversion by toggling, SQ min function for minimum sample weigh, according to the USP, automatic calibration / adjustment function, Density determination, averaging (weigh averaging), Formulation, Weighing in percent, Counting.
3.14. 7 No. Additional Selectable Application Programs: Customized identification, Statistics, Calculation, Time-Controlled Functions, Totalizing, Second tare memory, Over/ under check weighing.
3.15. Allowable Ambient Operating Temperature: 5°C to 40°C 85% RH or less;
3.16. Draft Shield protection against dust and water.
3.17. Motorized Internal Calibration.
3.18. External Calibration: 200 g Class 1;
3.19. Weighing Pan Size: min 8.5 cm x 8.5 cm;
3.20. Standard interface ports: USB (built into weighing module), RS-232C port for connecting.
3.21. Power Source: 220 -240 V/50-60Hz.
3.22. Operation and Maintenance manuals included.

LOT 2-44 Top Pan Balance

Item Code No.	Department	Section	Item Description
LOT 2-44	Diagnostic Laboratories	Microbiology and parasitology	Top Pan Balance

1. General Description

Technical Specifications- (Double Pan Component Balance)

1.1. Should be two pan balance.
1.2. Should have digital display of weight and other parameters.
1.3. Accuracy ± 2 grams.
1.4. Should have two independent weight sensors, which display individual weight of each bucket with accuracy.
1.5. It should have individual display monitor to display the weight of each bucket with blood bags.
1.6. Visual and audio alarm should get on as soon as the two plates get balanced.
1.7. Weight Measurement: Should be able to measure weight till 3 Kg.
1.8. Should be appropriate to weigh and balance blood holding baskets of standard size.
1.9. Weight to balance should not be more than 5 Kg.
1.10. Original Literature of equipment should be submitted.
1.11. User list should be provided with satisfactory report for the last three years from three Licensed Blood Banks with details.
1.12. The quoted equipment should be European CE or US FDA certified and relevant documentation submitted with the bid.
1.13. At least Two (2) years Manufacturing warranty and 5 years AMC. (CMC Cost submitted separately for LCC Consideration).
1.14. Firm will have to supply the stabilizer if required along with the equipment free of cost.

Item Code No.	Department	Section	Item Description
LOT 2-44	Diagnostic Laboratories	Microbiology and parasitology	Top Pan Balance
1.15. Firm should also provide the relevant calibration certificate for the equipment and perform annual calibration for the duration of warranty mandatory and AMC mandatory. 1.16. Electrical: The equipment should be able to run on the existing 230-240V electrical power and mobile application through rechargeable batteries. 1.17. All the necessary documentation including User and Technical manuals to be provided both in hard and soft copies.			

LOT 5-45 Clinical Microscope (2 pieces)

Item Code No.	Department	Section	Item Description
LOT 5-45	Diagnostic Laboratories	Microbiology and parasitology	Clinical Microscope
1. General Description			
All-purpose microscopes for general laboratory use, with binocular head, inclined 45º, build in graduated mechanical stage with control knob, with iris diaphragm, and filter holder, eye pieces, objective lens and illumination controls.			
2. Composition			
3.	Main unit		
3.1. Performance Specifications			
1.1.	Main Unit		
3.1.1.	Magnification	50 to 1000x or wider	
3.1.2.	Eyepieces	Paired 10x wide-field	
3.1.3.	Objective	Magnifications 10x, 40x, 100x (oil immersed or dry type)	
3.1.4.	Optical System	Universal Infinity System	
3.1.5.	Observation Tube	Binocular	
3.1.6.	Angle of Inclination	45ºC	
3.1.7.	Interpupillary Adjustment Distance	> 40 – 70 mm	
3.1.8.	Condenser Type	Universal condenser, N.A. 0.9 or Abbe or Swing out	
3.1.9.	Mechanical Stage	Graduated, with coarse and fine focusing control	
3.1.10.	X-Y motion control	Adjustable	
3.1.11.	X-Y motion vernier	0.1 mm or less	

Item Code No.	Department	Section	Item Description
LOT 5-45	Diagnostic Laboratories	Microbiology and parasitology	Clinical Microscope
3.1.12.	Vertical movements of stage	20mm or more	
3.1.13.	Focusing Control	Coarse Focusing - Stage Height Movement	
		Fine Focus Graduation	
3.1.14.	Illumination System	built in base illuminator, LED with	
		Brightness control, mains operated.	
		Filters with colour temperature correction.	
		Mirror Unit for Natural Light Illumination	
3.2.	Physical characteristics		
1.2.	Main unit		
3.2.1.	Approximate dimensions		
3.3.	Operating environment		
3.3.1.	Power Requirements	240V, A/c 50 Hz	
3.3.2.	Humidity		
3.4.	Accessories		
3.4.1.	Storage	Lockable Cabinet/Box	
3.4.2.	AVR		
3.5.	Capacity	Over VA of the main Unit	
3.6.	Consumables		
3.6.1.	Nil		
3.7.	Quality standards		
3.7.1.	Manufacturing standards	IEC 60601-1,ISO 13485, ISO 9001	
	Conformity to standards	CE and FDA marked.	
3.8.	Delivery point		
3.8.1.	See schedule		
3.9.	Pre installation requirements		
	Nil		

Item Code No.	Department	Section	Item Description
LOT 5-45	Diagnostic Laboratories	Microbiology and parasitology	Clinical Microscope
3.10.	Installation and testing		
	Testing at delivery point		
3.11.	Technical documentations		
3.11.1.	User manuals	2 Sets	
3.11.2.	Service Manual	2 Sets	
3.11.3.	Drawings		
3.12.	Warranty		
3.12.1.	Equipment	Atleast one year after delivery on all parts	

LOT 5-46 Clinical Microscope with darkfield application, polarization

Item Code No.	Department	Section	Item Description
LOT 5-46	Diagnostic Laboratories	Microbiology and parasitology	Clinical Microscope with darkfield application, polarization
1. General Description			
S/ No.	**Technical Specifications as follows or better**	**Technical Specification quoted by bidder**	**Bidders' deviation if any**
1.1.	ICOS system with upto 2000 X Magnification.		
1.2.	Trinocular Head I.P adjustment 53mm to 75mm graduated inclined at 30°. Photo and Video attachment with Sliding 80/20 beam splitter for attaching Video/ Digital Camera.		
1.3.	Standard Universal Eye piece and objectives with Quintuple Nosepiece.		
1.4.	Universal Semi-Apo Plan objectives with high light UV transmission.		

Item Code No.	Department	Section	Item Description
LOT 5-46	Diagnostic Laboratories	Microbiology and parasitology	Clinical Microscope with darkfield application, polarization
	4X,10X,20X,40X,100X(OIL) optional 2.5x, 50x(oil)		
1.5.	Ceramic coated flat top low position drop-down right-hand drive ergonomic X-Y Coaxial controls. 191mm x 128mm. stage should be with hard coat and rugged enough to provide smooth usage without any abrasion and ware and tare.		
1.6.	Universal Condenser suitable for bright field, dark field, Phase contract, Polarizing and florescence observation.		
1.7.	True Koehler 30W Illumination with automatic voltage sensing power supply		
1.8.	Modular fix position Fluorescence illuminator for egfp, s65 T, PI and RFP filter cubes. 100W HG HBO Lamp (2200L)		
1.9.	Microphotography attachment with Image documentation system. 3mp or better color cooled ccd with image analysis system. Individual calibration for all magnification are required in all linear measurement and annotation. Camera should have the capability to capture the fluorescence images simultaneously upto 5 filters with image merging capability. Standard Accessories:		

Item Code No.	Department	Section	Item Description
LOT 5-46	Diagnostic Laboratories	Microbiology and parasitology	Clinical Microscope with darkfield application, polarization
	a. 30W spare 1 no. b. 100W HG HBO 1 no. c. Standard European power cord 2 no. d. Spare fuse 3amp. e. Polyvinyl dust cover. f. Immersion oil. The above microscope should be upgradable in future with motorized focus and noise piece.		
1.10.	Branded computer with HDMI LED MONITOR (24").		

Research Microscope with phase contrast

1. Research microscope with phase contrast:
    - Dark field, polarization, florescence, CCTV & photomicrography attachments
    - **Optics**-ICOS system with upto1000 X Magnification.
    - Trinocular Head (Siedentop f type) I. Pre-adjustment 53mm to 75mm graduated inclined at 30°.
    - Photo and Video attachment with Sliding 80/20,100:0/100 beam splitter for attaching Video/Digital Camera.
    - **Eyepiece**-Widefield eyepiece 10X High eyepoint, FN 22.24
    - **Nosepiece**-Quintuple or higher with slot for polariser attachment.
    - **Stage**-Double plate ceramic coated stage 191mm (W) X 128 mm (D) with rounded corners & low positioned drop-down ergonomic X-Y coaxial controls
    - **Condenser**-Universal Abbe condenser, N.A.1.1 or higher with iris diaphram dove tail mount suitable for darkfield, phase contrast, Polarising & Fluorescence observations
    - **Objectives**- U Plan 4X, N.A.0.10, W.D.25.9 mm, F.N.24 Semi Apo Plan 10X, N.A.0.40, W.D.1.0mm, F.N.2 ,Semi Apo Plan 40X, N.A.0.82, W.D.0.15mm, F.N.24, Semi Apo Plan 100X oil, N.A.0.1.25, W.D.0.2mm, F.N.24
    - Incident Illumination with automatic voltage sensing power supply/ LED
    - Modular six position Fluorescence illuminator.
    - To be supplied with blue, green & UV excitation Chroma filters.
    - 100WHG (Mercury) HBO Lamp (2200L)
    - Microphotography attachment with Image documentation system.
    - 3mp for better color cooled ccd with image analysis system.I

Item Code No.	Department	Section	Item Description
LOT 5-46	Diagnostic Laboratories	Microbiology and parasitology	Clinical Microscope with darkfield application, polarization

- Individual calibration for all magnification is required in a linear measurement and annotation.
- Camera from same manufacturer.
- Image sensor 1/1.8" CCD, pixel size 3.45 um x 3.45 um
- frame rate: 6 fps @ 2080x1542,12 fps @ 1040x770)
- Should have the capability to capture the fluorescence images simultaneously upto 5 filters with image merging capability.

2. Standard Accessories:
   - Spare 100 WHGHBO 1no.
   - Standard European power cord 2 no.
   - Spare fuse 3amp.
   - Polyvinyl dust cover Immersion oil.

The above microscope should be upgradable in future with motorized focus and noise piece. Branded computer with HDMI medical grade LED MONITOR (24") with latest version OS, CPU & other accessories to be supplied with the microscope

3. Certification: Should have US FDA & European CE for microscope and florescence system
4. Backup system: Minimum 30 mins online UPS backup should be provided.

LOT 5-47 Fluorescence Microscope

Item Code No.	Department	Section	Item Description
LOT 5-47	Diagnostic Laboratories	Microbiology and parasitology	Fluorescence Microscope
1. General Description			
2.			

Sl.No.	Component	Description
2.1.	Microscope frame	- fluorescence microscope with transmitted light LED illumination for brightfield, phase contrast, fluorescence, DIC and upgradable to dark-field option for Bio-Medicine Applications. - Should have integrated compensation mechanism to eliminate any focus drift during long term observation to ensure consistent sharp image.
2.2.	Light source	Auto-off function, LED with service life of minimum 50,000 hours or better, constant color temp.

Item Code No.	Department	Section	Item Description
LOT 5-47	Diagnostic Laboratories	Microbiology and parasitology	Fluorescence Microscope

2.3.	Condenser	Universal turret condenser (6 positions) with free working distance of 40 mm and NA of 0.4 or higher suitable for Brightfield, Phase Contrast and Integrated Modulation Contrast.
2.4.	Objectives	High performance long working distance A p o c h r o m a t i c Objectives suitable for Bright field, Phase Contrast, DIC, Hoffman contrast & fluorescence Observation on all objectives: 4.0x/0.07, 10x/0.25, 20x/0.35, 40x/0.8, 63x/1.1(X100).
2.5.	Focus drive	Coarse and fine focus drive of 30 mm or more. Coarse revolution 2 mm and fine revolution 0.2 mm or better
2.6.	Nosepiece	Sextuple (6 position) revolving coded (readable from PC) nosepiece suitable for all the techniques. Objective specific individual slots for inserting Nomarski DIC prisms.
2.7.	Eyepiece	Anti-fungus type pair of 10x eye pieces with 22 mm or better field of view and dioptre adjustment for both eyes.
2.8.	Stage	Mechanical XY Stage with specimen holders for Multi-well plate's / Petri dishes / Slides, covering maximum travel range.
2.9.	Observation tube	Wide-field Trinocular tube with 50:50 &45° viewing angle for acquiring max signals
2.10.	Fluorescence Illumination	capacity to attach four or more Fluorescence LED light sources for UV, Blue, Green, Yellow and Red excitation. The fluorescence LED with minimum 25,000 Hrs Lifetime and the unit should be controlled by same imaging software, should accompany with control panel for changing the wavelength and controlling intensity.
2.11.	Fluorescence Filters	For UV excitation, excitation filter: 340-380 nm, dichromatic mirror: 400 nm, suppression filter: 425 nm. For blue, red and yellow excitation, excitation filter: 450-490 nm, dichromatic mirror: 510 nm, suppression filter: 515 nm. For green excitation, excitation filter: 515-560, dichromatic mirror: 580 nm, suppression filter: 590 nm
2.12.	Camera	Dedicated digital Scientific grade camera capable of taking high resolution images, 7 Megapixel or above, High grade CMOS/CCD sensor - Pixel Size 3.45 μm x 3.45 μm or more - Sensor Size 8.5 mm x 7.1 mm; image diagonal 11.1 mm, equivalent to 2/3'' sensor Format or more - Active cooling delta 20°C for reduced noise levels - Live Image 12 frames / s @ 2,464 × 2,056 pixels or more - Quantum efficiency of 60% or better

Item Code No.	Department	Section	Item Description
LOT 5-47	Diagnostic Laboratories	Microbiology and parasitology	Fluorescence Microscope

		- High dynamic range >58dB / 800:1 - Spectral range – 400-720 nm - Recommended 0.63x 0.7x C-mount adapter - Digitization 12 Bit / Pixel or better - Interfaces USB 3.0 SuperSpeed (5 Gbit / s) - Supported Operating systems Win7/Win 10 minimum - RGB Bayer color filter mask - The Camera should be suitable to capture Bright Field, Phase Contrast, Dark Field & sensitive Fluorescence Imaging
2.13.	Software	Perpetual licensed imaging software with measurement and image overlay with following essential features: - Live imaging - Annotation, Micron bar (point to point measurement) - Video capturing - Image editing - Fluorescence Channel Merging - z-stacking of images - Time-Lapse Imaging Multi-Channel Image Merging, Vector Layer & Multi-Dimensional File Format
2.14.	Data Processing Unit	Branded PC with 7^{th}/ 8^{th} generation core i5/i7 processor, minimum 16 GB RAM, NVIDIA graphics card with 2 GB DDR5 RAM, 1 TB SATA HDD or higher, Original Windows 10 OS, DVD RW, at least 24'' monitor, keyboard, and optical mouse
2.15.	UPS	UPS for computer and microscope with at least 2-hour backup Input voltage for UPS is 220V, 50 Hz.
2.16.	Warranty	At least 3 years comprehensive warranty must be provided with continued software upgradation.
2.17.	Miscellaneous	- Dust cover, all wires, cords, connectors, and standard accessories needed for proper functioning of the microscope - Microscope Camera & Software Should Be from Same Manufacturer for Best Compatibility & Upgradability - Technical features for the product quoted should exclusively be supported by authentic company catalog that can be verified from the official company website. **The bids not supported with authentic /original catalogue will not be considered.**
2.18.	Optional Items	- Deep UV fluorescent filter – 220-260 nm - Camera with 36 fps and spectral range 320-720 nm - XY image stitching in imaging software - Macro imaging: suitable for large specimen size 30mm length

Item Code No.	Department	Section	Item Description
LOT 5-47	Diagnostic Laboratories	Microbiology and parasitology	Fluorescence Microscope

Non-technical conditions:

- Supplier must confirm that they have installed at least 10 systems in locally.
- Any additional advanced features of the equipment and accessories can be quoted with full details and specifications as optional
- Detailed information about infrastructure requirements
- Installation and training onsite for Technical and operational users
- Party should submit along with offer the filled Compliance matrix
- All essential and recommended spares should be informed and should be quoted. Parts should be available for next 10 years.
- Necessary pre-installation advice including power requirement should be enclosed along with the offer. Preferable Principal company Service facility in Kenya.
- OEM/Vendor shall support the shifting the equipment and reinstallation of it
- Valid European CE/FDA and ISO certifications of the quoted model should be submitted

LOT 5-48 Disc Dispenser

Item Code No.	Department	Section	Item Description
LOT 5-48	Diagnostic Laboratories	Microbiology and parasitology	Disc Dispenser
1. General Description			
2.			
The 7-disk dispenser with its unique central position is designed for 90 or 100 mm round plates • The 12/16-disk dispenser is designed for 150 mm round plates (12 disks) or 120 mm square plates (16 disks) • No height adjustment required for different volumes of media in plates (3 to 5 mm depth) • Cartridges "click" positively into their correct			

Item Code No.	Department	Section	Item Description
LOT 5-48	Diagnostic Laboratories	Microbiology and parasitology	Disc Dispenser
locations and a plastic skirt ensures that each agar plate is precisely centered every time dispensers are used • Any unused position can be blocked to avoid plate to plate contamination • Disks are dispensed and tamped onto the agar • Storage box including desiccant protects the antibiotic disks from moisture when dispenser is kept at +2-8°C			

LOT 5-49 Colony Counter

Item Code No.	Department	Section	Item Description
LOT 5-49	Diagnostic Laboratories	Microbiology and parasitology	Colony Counter

1. General Description

1.1. Automated Colony Counter:
1.2. Compact design to occupy limited space in the lab with High resolution at least 15-18 megapixels, gives sharp images.
1.3. Selectable light sources – epi (reflected) and transmitted LEDs.
1.4. Click and count plates up to 150mm (6") in diameter.
1.5. Fast, automatic, repeatable, and accurate counting for high throughput labs
1.6. Measure colonies of sizes 0.lmm onwards
1.7. Count 500 to 1000 colonies per second.
1.8. Control camera, change shutter speed, focus and other parameters controls from PC option for Split, add, delete colonies
1.9. Click and count in seconds.
1.10. Generate comprehensive analysis reports for publication.
1.11. Standard lighting modes are -Darkfield, Epi-illumination, Trans-illumination, Epi + Trans-illumination
1.12. Optional modes are RGB & UV lighting
1.13. Epoxy coated steel cabinet.
1.14. High power LEDs for transmitted illumination Options for UV transilluminator (254nm, 302/312nm, 355nm) Option for Trans white LED Table
1.15. Real Time colony count display
1.16. Colony count should be highlighted, excluded, and define.
1.17. Analysis report should be exported.
1.18. Sensitivity Adjustment Controls Detect colonies as per colour, size, circularity.
1.19. Should be CE and/or FDA marked and ISO certified company product.

LOT 5-50 Micro Pipettes - single –channel

Item Code No.	Department	Section	Item Description
LOT 5-50	Diagnostic Laboratories	Microbiology and parasitology	Micro Pipettes - single –channel

1. General Description

2. Composition

2.1.	Main unit				

2.2. Description of the medical supply unit design type

2.2.1. Pipettes, Single Channel, Variable volume 0.5-l0ul
2.2.2. Pipettes, Single Channel, Variable volume 10-100ul
2.2.3. Pipettes, Single Channel, Variable volume 20-200ul
2.2.4. Pipettes, Single Channel, Variable volume 100-I000ul
2.2.5. Variable volume micropipette 2-20ul
2.2.6. Variable volume single channel micropipette 0.5-5000ul

Single Channel Pipette - Variable Volume

2.3. Pipette is light weight with high precision, robust and dependable.
2.4. ISO 8655 certified
2.5. Compatible with universal tips
2.6. Should have effortless one hand operation: Volume setting, Volume locking, Pipetting and tip ejection - all operations with the same hand.
2.7. Easy maintenance: Dismantle & reassemble without any tools, all parts should be replaceable.
2.8. Display: Should have 4 position volume display, with an integrated lens for better visibility of the volume, Display always visible and facing the user during operation.
1.1. MOC (Material of Construction): Corrosion resistant piston and sealing material, to allow uniform and smooth pipetting.
1.2. Sterilisation: Completely autoclavable at 121°C (20 min) without disassembly for maximum protection from contamination.
1.3. Volume range & quantity: as specified

Range	Total Qty	Maximum permissible system error (at 100% Vol)	Max. Permissible Random error (at 100% volume)
0.5-10ul	04No	+-1%	+-0.4%
10-100ul	04No	+-0.8%	+-0.2%
100-1000ul	13No.	+-0.6%	+-0.2%
2-20ul	04No.	+-1%	+-0.3%
20-200ul	09No	+-0.6%	+-0.2%
0.5-5000ul	02N0.	+-0.6%	+-0.2%

Item Code No.	Department	Section	Item Description
LOT 5-50	Diagnostic Laboratories	Microbiology and parasitology	Micro Pipettes - single –channel

1.4. ldentification: Individual serial number engraved on the instrument and also has Individual labelling area for user specific identification.
1.5. Manuals: Each instrument will be provided with user manual which has pictorial description of all operations, limitations, and functions.
1.6. Each piece should be accompanied with Certificate of conformity and Calibration certificate having Uncertainty measurements
1.7. Should provide annual service and calibration

LOT 5-51 Micro Pipettes - Multi -channels

Item Code No.	Department	Section	Item Description
LOT 5-51	Laboratory	Microbiology and parasitology	Micro Pipettes- Multi-channels

1. General Description

Multichannel Pipettes (Micropipette - 50µl variable Vol., Micropipette - 200µl variable Vol., Micropipette - 1000µl variable Vol.)

Compliance on each parameter with detailed substantiation how the offered product meets the requirement. (Simply writing as YES/ Complied/ As per FDA/CE/ISO terms is not allowed)

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

A). Micropipette - 50µl variable Vol.

3.1. Variable Volume Micropipettes feature built-in tip ejectors and autoclavable tip cones.
3.1.1. Should work on a click-stop digital system, are easy to calibrate and maintain, and easy to disassemble for autoclaving.
3.1.2. Manufactured as per ISO 9001:2008,. Each pipette should be individually calibrated according to ISO 8655 standards
3.1.3. Calibration certificate must be provided with each pipette.
3.1.4. Accuracy and Precision values should be those laid down in the ISO 8655 standards.
3.1.5. Built-in, streamlined tip ejector facilitates easy tip ejection and access to narrow necked bottles and tubes.
3.1.6. Variable Volume Pipette: 5-50 µl
3.1.7. Increments [µl]: 0.5
3.1.8. Volume [µl]: 5.0 to 50.0
3.1.9. Accuracy (±) %: 2.5 to 0.7
3.1.10. Precision (±) %: 1.5 to 0.3

Item Code No.	Department	Section	Item Description
LOT 5-51	Laboratory	Microbiology and parasitology	Micro Pipettes- Multi-channels

B). Micropipette - 200µl variable Vol.

3.2. Variable Volume Micropipettes feature built-in tip ejectors and autoclavable tip cones.

3.2.1. Should work on a click-stop digital system, are easy to calibrate and maintain, and easy to disassemble for autoclaving.

3.2.2. Manufactured as per ISO 9001:2008,. Each pipette should be individually calibrated according to ISO 8655 standards

3.2.3. Calibration certificate must be provided with each pipette.

3.2.4. Accuracy and Precision values should be those laid down in the ISO 8655 standards.

3.2.5. Built-in, streamlined tip ejector facilitates easy tip ejection and access to narrow necked bottles and tubes.

3.2.6. Variable Volume Pipette: 50-200 µl

3.2.7. Increments [µl]: 1

3.2.8. Volume [µl]: 50 to 200

3.2.9. Accuracy (±) %: 0.6 to 1

3.2.10. Precision (±) %: 2 to 0.3

C). Micropipette - 1000µl variable Vol

3.3. Variable Volume Micropipettes feature built-in tip ejectors and autoclavable tip cones.

3.3.1. Should work on a click-stop digital system, are easy to calibrate and maintain, and easy to disassemble for autoclaving.

3.3.2. Manufactured as per ISO 9001:2008,. Each pipette should be individually calibrated according to ISO 8655 standards

3.3.3. Calibration certificate must be provided with each pipette.

3.3.4. Accuracy and Precision values should be those laid down in the ISO 8655 standards.

3.3.5. Built-in, streamlined tip ejector facilitates easy tip ejection and access to narrow necked bottles and tubes.

3.3.6. Variable Volume Pipette: 200-1000 µl Increments [µl]: 5

3.3.7. Volume [µl]: 200 to 1000

3.3.8. Accuracy (±) %: 0.9 to 0.6

3.3.9. Precision (±) %: 0.3 to 0.2

Micropipette - 1000µl variable Vol.

3.4. Robust yet light and easy to use

3.4.1. High chemical and UV resistance

3.4.2. Fully autoclavable

3.4.3. Optiload mechanism, Volume setting by click stops

3.4.4. Suitable for both left and right-handed

3.4.5. Compatible with a wide range of tips

3.4.6. Compatible with most commonly used lab tubes due to slim tip ejector collar

3.4.7. Safe-Cone Filter to prevent contamination and damage of pipette

3.4.8. Volume range color-coding for easy pipette and tip selection

Item Code No.	Department	Section	Item Description
LOT 5-51	Laboratory	Microbiology and parasitology	Micro Pipettes- Multi-channels

3.4.9. Only 2-3 parts to disassemble and clean
3.4.10. FDA /CE marked
3.4.11. 2-year warranty
3.4.12. Volume Range: Multichannel pipette (8 channels) 30-300 µl
3.4.13. Increments [µl]: 0.20 µl
3.4.14. Volume [µl]: 300, 150 , 30 µl
3.4.15. Accuracy (±) %: 0.60,1.00, 2.00 %
3.4.16. Precision (±) %: 0.25, 0.50,1.00 %

LOT 5-52 Automatic Antibiotic Zone Reader

Item Code No.	Department	Section	Item Description
LOT 5-52	Diagnostic Laboratories	Microbiology and Parasitology	Automatic Antibiotic Zone Reader

LOT 5-53 Dry Bath

Item Code No.		Department	Section	Item Description
LOT 5-53		Diagnostic Laboratories	Microbiology and Parasitology	Dry Bath

1. General Description

The dry bath incubator is required for incubation of biological and chemical sample tubes at required temperature.

2. Technical specifications:

2.1. Temperature Range: Ambient +5 °C to 100 °C
2.2. Temperature resolution: ± 0.1 °C
2.3. Temperature uniformity: ± 0.2 °C
2.4. Temperature accuracy: ± 0.3 °C
2.5. Block chamber: Stainless steel
2.6. Dry bath blocks: 1.5 mL, 15 mL, and 50 mL centrifuge tubes
2.7. Should contain LCD display for time and temperature
2.8. Easy user calibration
2.9. The system should have better heating and cooling speeds.
2.10. Should have ergonomic design for avoiding burn accidents
2.11. Should have high temperature accuracy and uniformity (±1ºC) in all blocks.
2.12. The system should display actual block temperature
2.13. Power supply: 230-240volts
2.14. Should supply one extra Digital thermometer with Probe for temperature monitoring
2.15. Should provide Installation Qualification (IQ), Operational Qualification (OQ) certificates for the Instruments at free of cost

Item Code No.		Department	Section	Item Description
LOT 5-53		Diagnostic Laboratories	Microbiology and Parasitology	Dry Bath
2.16. Should provide proper calibration certificates, Instruction manuals and any other compliance certificates along with the system.				

LOT 5-54 Hot Plate Magnetic Stirrer

Item Code No.	Department	Section	Item Description
LOT 5-54	Diagnostic Laboratories	Microbiology and Parasitology	Hot Plate Magnetic Stirrer
1. General Description			
2. Technical specifications:			
2.1. **Instrument type:** Independently operated Heating plate with magnetic Stirring option. 2.2. **Maximum Stirring Speed**: 100 to 2000 rpm with at least 5litrs stirring capacity 2.3. **Display:** Should have digital temperature and speed display 2.4. Should have extra temperature probe and controller for measuring sample temperature with display temperature. 2.5. **Hotplate surface:** Should not be less than 180mm dia / 15 x 15 cm square or more 2.6. **Body:** body should be built with chemical, and corrosion resistant materials and surface should be seamless and corrosion resistant. 2.7. **Temperature Accuracy:** Temp. accuracy of ±2°C 2.8. **Temp setting Range:** Ambient to 100°C 2.9. **Power supply:** 230-240Volts, 50 Hz 2.10. Should provide proper calibration certificates, Instruction manuals and any other compliance certificates along with the system. 2.11. **Warranty:** At least 2 years.			

LOT 5-55 Bactec Machine

Item Code No.	Department	Section	Item Description
LOT 5-55	Diagnostic Laboratories	Microbiology and Parasitology	Bactec Machine
1. **General Description**			
2.			

Item Code No.	Department	Section	Item Description
LOT 5-55	Diagnostic Laboratories	Microbiology and Parasitology	Bactec Machine

LOT 5-56 Refrigerator (2 to 8 deg)

Item Code No.	Department	Section	Item Description		
LOT-5-56	Diagnostic Laboratory	Microbiology and Parasitology	Refrigerator		
1. General Description					
Refrigerator					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
3.1.	Main Unit				
3.1.1.	Material	Insulated galvanized steel			
3.1.2.	Type	Compressor, electrical			
3.1.3.	Door	Double door, glass type			
3.1.4.	Temperatures range	2 to 8^{o}C stable ± 0.5^{o}C			
3.1.5.	Ambient temperature	10 ^{o} C to 35^{o}C			
3.1.6.	Blood storage capacity	400 No. of blood bags			
3.1.7.	Shelves	Provided, adjustable and extractable with dividers			
3.1.8.	Temperature monitor	Digital display with temperature record history			
3.1.9.	Control	Electronic, Microprocessor based			
3.1.10.	Refrigerant	CFC free			
3.1.11.	Alarm	Provided, audible and visible			
3.1.12.	Power	240V, 50 Hz, a.c			
4.	Quality standards				
4.1.	Manufacturing standards	ISO 9001, ISO 13485, ISO 14001			

Item Code No.	Department	Section	Item Description
LOT-5-56	Diagnostic Laboratory	Microbiology and Parasitology	Refrigerator
4.2.	Conformity to standards	CE and FDA marked.	
5.	Delivery point		
5.1.	See Schedule	For inspection and testing	
5.2.	Nil		
6.	Warranty		
6.1.	Equipment	Minimum of one year after commissioning on all parts.	
6.2.	Equipment System	Nil	
7.	Accessories		
7.1.	Automatic Voltage Regulator (AVR)		
7.1.1.	Capacity	Over VA of the main Unit	
7.1.2.	Input	Ac 240V, 50Hz, Single phase ± 15%	
7.1.3.	Output	Ac 240V, 50Hz, Single Phase ± 2.5 %	

LOT 5-61 Automated Coagulometer

Item Code No.	Department	Section	Item Description
LOT 5-61	Diagnostic Laboratories	Hematology	Automated Coagulometer
1. General Description			
Fully automated Coagulometer, capable of measuring at Minimum PT, APTT, 10A and TT. The unit should be fully automatic, with electronic digital read out, in built printer.			
2. Composition			
2.1.	Main unit		
3. Description of the medical supply unit design type			
3.1 The unit should be with the following superior features: The equipment should be a random-access system. 3.2 The instrument should be able to provide simultaneous measurement of ZClotting, Chromomeric and Immunological assays.			

Item Code No.	Department	Section	Item Description
LOT 5-61	Diagnostic Laboratories	Hematology	Automated Coagulometer

3.3 Principle based on change in viscosity by electromagnetic clot detection system with steel ball oscillation or multi wavelength scanning and sample liquid-sensing technology.
3.4 The instrument should be capable of continuous sample & reagent loading during the run.
3.5 The instrument should be able to add, delete, rerun tests during the run.
3.6 Minimum 96 sample positions with all STAT facility should be provided.
3.7 Refrigerated reagent positions of a minimum of 30 all at 15c should be available
3.8 Instrument should have in-built Barcode reader for positive identification of sample and reagents i.e. name, stability, volume, position etc.
3.9 Instrument should be able to detect automatically positive sample and reagent positions.
3.10 Possibility of Auto Rerun and Auto Redilution of samples should be available.
3.11 Positive sample and reagents level detection should be provided.
3.12
3.13 instruments
3.14 Instrument should have online sample reagents monitoring.
3.15 Instrument should have data storage capacity of min 1000 patient
3.16 Multi batch Q.C. Capacity on levy- Jennings graphs should be available in the system.
3.17 Flexibility to rerun, add a test or delete a test, handling of stat sample at any time should be provided.
3.18 Automatic dilution for sample and calibrators should be possible.
3.19 Provision for bi-directional LIS connectivity should be available.
3.20 Minimum test menu available should include PT, APTT, Fibrinogen, TT, LA, All Factors, ATIII, Heparin, PC, PS, PLG, AP, APCR, DDI, FDP, FM, vWf.
3.21 The system should be equipped with power backup to avoid an loss of date or interfearence in the evnt of power interruption.

4.	Physical characteristics			
4.1.	Main unit	Tabletop Model		
		Robust construction and easy to clean		
5.	Quality standards			
5.1.	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1		
5.2.	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked		
6.	Delivery point			
6.1.	EAKI Site	For inspection, Installation, commissioning and training		
7.	Training			

Item Code No.	Department	Section	Item Description
LOT 5-61	Diagnostic Laboratories	Hematology	Automated Coagulometer
7.1.	User Training	On site user training on operation and daily upkeep	
7.2.	Maintenance training	Onsite maintenance training on preventive maintenance	
8.	Technical documentations		
8.1.	User manuals	2 Sets	Softy & Hard copies
8.2.	Service Manual	2 Set	Softy & Hard copies
9.	Warranty		
9.1.	Equipment	Minimum of two year after commissioning on all parts.	
9.2.	Equipment System	Nil	
B: Reagents and consumable supply 10. Start-up Kits Controls & calibrates must be provided for all the Tests			
C**: Comprehensive Maintenance and repair service**			
11. Comprehensive preventive and repair service Proof of capacity to provide a comprehensive preventive and repair maintenance service contract including parts and material for a period of 10 years, from commissioning date			

LOT 5-62 Automated ESR

Item Code No.	Department	Section	Item Description
LOT 5-62	Diagnostic Laboratories	Hematology	Automated ESR

1. General Description

2. Technical Specifications

Thru-put: minimum 50 tests per hour

i. Loading of sample: Automated sample aspiration
ii. Reading results in 20 secs
iii. Sample Collection: Any type of blood collection EDTA tubes / vials
iv. Anti-Coagulant: should work with sample collected in EDTA
v. Reading Temperature: 37ºC

Safety Features (Blood Sample): Closed Cycle no touch with blood sample

i. Waste collection: In Safety tank at the end of cycle
ii. Autotube eject
iii. Sample volume- minimum 50 microlitre
iv. built-in QC-program monitors the performance and generates output files for use in Excel or external QC-programs.

A. built-in barcode reader identifies each sample. Capable of bi-directional communications with the Laboratory Information Management System (LIMS)
   i. QC module with Levey-Jennigs-Diagram
   ii. Data storage of up to 5000 -10, 0000 patient results
   iii. Touchscreen with user interface
   iv. Unique sedimentation curve
   v. Correlation with Westergren Technique for blood collection in EDTA.

B. System Configuration Accessories, spares and consumables
   i. Printer with specific printing paper
   ii. Compatible Barcode Scanner.

C. Power Supply
   i. Power input to be 220-240VAC, 50Hz fitted with plug
   ii. Resettable over current breaker shall be fitted for protection
   iii. Voltage corrector/stabilizer of appropriate ratings meeting ISI Specifications. (Input 160-260 V and output 220-240 V and 50 Hz)
   iv. Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.

D. Standards, Safety and Training
   i. Sample Reading: As per compliance with ICSH (International Committee for the Standardization of Hematology)

E. Comprehensive training for lab staff and support services till familiarity with the system.
ii. Should be FDA/CE approved product
Full integration into lab automation System Configuration Accessories, spares and consumables
Printer with specific printing paper and Compatible Barcode Scanner
Availability of in-country reagent distribution;
Maintenance support / capacity should be demonstrated

LOT 5-64 Refrigerator, Blood Bank

Item Code No.	Department	Section	Item Description
LOT 5-64	Diagonistic Laboratories	Hematology	Blood Bank Refrigerator
1. General Description			
Blood Bank Refrigerator			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	Material	Insulated galvanized steel	
3.1.2.	Type	Compressor, electrical	
3.1.3.	Door	Double door, glass type	
3.1.4.	Temperatures range	4 ^{o}C stable ± 0.5^{o}C	
3.1.5.	Ambient temperature	10 ^{o} C to 35^{o}C	
3.1.6.	Blood storage capacity	minimum 100 No. of blood bags	
3.1.7.	Shelves	Provided, adjustable and extractable with dividers	
3.1.8.	Temperature monitor	Digital display with temperature record history	
3.1.9.	Control	Electronic, Microprocessor based	
3.1.10.	Refrigerant	CFC free	
3.1.11.	Alarm	Provided, audible and visible	
3.1.12.	Power	240V, 50 Hz, a.c	

Item Code No.	Department	Section	Item Description
LOT 5-64	Diagonistic Laboratories	Hematology	Blood Bank Refrigerator
4.	Quality standards		
4.1.	Manufacturing standards	ISO 9001, ISO 13485, ISO 14001	
4.2.	Conformity to standards	CE and FDA marked.	
5.	Delivery point		
5.1.	See Schedule	For inspection and testing	
5.2.	Nil		
6.	Warranty		
6.1.	Equipment	Minimum of one year after commissioning on all parts.	
6.2.	Equipment System	Nil	
7.	Accessories		
7.1.	Automatic Voltage Regulator (AVR)		
7.1.1.	Capacity	Over VA of the main Unit	
7.1.2.	Input	Ac 240V, 50Hz, Single phase ± 15%	
7.1.3.	Output	Ac 240V, 50Hz, Single Phase ± 2.5 %	

LOT 5-66 Clinical Microscope

Item Code No.	Department	Section	Item Description
LOT 5-66	Diagnostic Laboratories	Hematology	Clinical Microscope
1. General Description			
All-purpose microscopes for general laboratory use, with binocular head, inclined 45°, build in graduated mechanical stage with control knob, with iris diaphragm, and filter holder, eye pieces, objective lens and illumination controls.			
2. Composition			
3.	Main unit		

Item Code No.	Department	Section	Item Description
LOT 5-66	Diagnostic Laboratories	Hematology	Clinical Microscope
3.1. Performance Specifications			
3.2.	Main Unit		
3.2.1.	Magnification	50 to 1000x or wider	
3.2.2.	Eyepieces	Paired 10x wide-field	
3.2.3.	Objective	Magnifications 10x, 40x, 100x (oil immersed or dry type) X4, X10, X40, X50, X100	
3.2.4.	Optical System	Universal Infinity System	
3.2.5.	Observation Tube	Binocular	
3.2.6.	Angle of Inclination	45ºC	
3.2.7.	Interpupillary Adjustment Distance	> 40 – 70 mm	
3.2.8.	Condenser Type	Universal condenser, N.A. 0.9 or Abbe or Swing out	
3.2.9.	Mechanical Stage	Graduated, with coarse and fine focusing control	
3.2.10.	X-Y motion control	Adjustable	
3.2.11.	X-Y motion vernier	0.1 mm or less	
3.2.12.	Vertical movements of stage	20mm or more	
3.2.13.	Focusing Control	Coarse Focusing - Stage Height Movement	
		Fine Focus Graduation	
3.2.14.	Illumination System	built in base illuminator, LED with	
		Brightness control, mains operated.	
		Filters with colour temperature correction.	
		Mirror Unit for Natural Light Illumination	
3.3.	Physical characteristics		
3.3.1.	Main unit		
3.3.2.	Approximate dimensions		
3.4.	Operating environment		
3.4.1.	Power Requirements	240V, A/c 50 Hz	
3.4.2.	Humidity		

Item Code No.	Department	Section	Item Description		
LOT 5-66	Diagnostic Laboratories	Hematology	Clinical Microscope		
3.5.	Accessories				
3.5.1.	Storage	Lockable Cabinet/Box			
3.5.2.	AVR				
1.2.1.	Capacity	Over VA of the main Unit			
3.6.	Consumables				
3.6.1.	Nil				
3.7.	Quality standards				
3.7.1.	Manufacturing standards	IEC 60601-1,ISO 13485, ISO 9001			
3.7.2.	Conformity to standards	CE and FDA marked.			
3.8.	Delivery point				
3.8.1.	See schedule				
3.9.	Pre installation requirements				
	Nil				
3.10.	Installation and testing				
	Testing at delivery point				
3.11.	Technical documentations				
3.11.1.	User manuals	2 Sets			
3.11.2.	Service Manual	2 Sets			
3.11.3.	Drawings				
3.12.	Warranty				
3.12.1.	Equipment	One year after delivery on all parts			

LOT 5-67 Platelet agitator/shaker with incubator

Item Code No.	Department	Section	Item Description
LOT 5-67	Laboratory	Hematology	Platelet agitator/shaker with incubator
1. General Description			
Platelet agitator/shaker with incubator for agitation of platelet concentrates at set temperature. The unit should be constructed from robust, corrosion free outer material. Interior part should be constructed from high grade stainless steel with agitation facilities. It should be microprocessor based for adjustable agitation and fixed temperature control, with inbuilt digital display and temperature recorder			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	Capacity (internal)	125 litres, Minimum	
3.1.2.	Incubator temperature	+22^{o}C	
3.1.3.	Accuracy	± 0.5^{o}C	
3.1.4.	Temperature recorder	Provided for minimum 7 days circular chart	
3.1.5.	Agitator	4 No. at 60-70 strokes per minute	
3.1.6.	Uniformity of temperature	Constant temperature in the chamber ± 0.5^{o}C	
3.1.7.	Display	Digital for temperature and agitation.	
3.1.8.	Alarm	Audio and visual for, temperature deviation, agitator failure	
3.1.9.	Safety Device	Agitation stops when door is opened	
4.	Physical characteristics		
4.1.	Main unit	Bench top, Robust construction and easy to clean	
	Internal capacity	125 liters, minimum	
5.	Operating environment		
5.1.	Power Requirements	240V, A/c 50 Hz, Single phase	
5.2.	Ambient temperature	10^{o} C to 40^{o} C	
5.3.	Relative humidity	20% to 90%	

Item Code No.	Department	Section	Item Description		
LOT 5-67	Laboratory	Hematology	Platelet agitator/shaker with incubator		
6.	Quality standards				
6.1.	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
7.	Conformity to standards	Directive 2002/98/EC, directive 2004/33/EC, CE and FDA marked			
7.1.	Local back up service				
7.2.	Available	Should be available locally			
7.3.	Capacity to service equipment	Agent shall have adequate facilities, spare parts, and qualified and skilled technical staff			
8.	Delivery point				
8.1.	See Schedule	For inspection			
8.2.	Hospital	For installation: See hospital schedule			
9.	Installation and testing				
9.1.	Complete installation and setup of the machine at various sites as per manufacturer's instructions				
10.	Training				
10.1.	User Training	On site user training on operation and daily upkeep			
10.2.	Maintenance training	Onsite maintenance training on preventive maintenance			
11.	Technical documentations				
11.1.	User manuals	2 Sets			
11.2.	Service Manual	1 Set			
11.3.	Drawings	Nil			
12.	Commissioning				
12.1.	Testing and commissioning of the machine to the satisfaction of the user.				
13.	Warranty				
13.1.	Equipment	Minimum of one year after commissioning on all parts.			
13.2.	Equipment System	Nil			

LOT 5-68 Cryo Bath

Item Code No.	Department	Section	Item Description
LOT 5-68	Laboratory	Hematology	Cryo Bath

1. General Description

The Cryo Bath is designed for rapid and uniform thawing of fresh frozen plasma bags at 4 ºC +/- 0.2 ºC such that the cryoprecipitate remains solid, and a cry supernatant liquid is formed that can be transferred out of the bag in order to manufacture cryoprecipitate units.

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

Operational Requirements:

3.1. Floor standing system mounted on lockable castors.
3.2. Should be able to thaw ten to twelve plasma units (FFP ~200-300 ml) at a time.
3.3. Should have Stainless Steel Tank of 22G, and an insulated lid covered with 20G Stainless Steel.
3.4. Should be fitted with compartments that have removable rack/tray system for securely holding the plasma bags and ensuring that entry ports are not contaminated with water.
3.5. Should be a microprocessor-controlled water bath-based system operating at a temperature at 4 ºC +/- 0.2 ºC or alternative can also be safely set at 37 ºC +/- 0.2 ºC.
3.6. Digital, electronic system with provision for programmable temperature adjustment setting with LED display with temperature resolution of 0.1 ºC
3.7. Programmable temperature range covers 3-50 ºC.
3.8. Should not take more than 2 hours at full loads to thaw the plasma into cry supernatant.
3.9. Should have a deep thawing chamber with a stirrer for water circulation & gentle rocking for uniform heating
3.10. Should have a system to drain the chamber without lifting or tilting and should be fitted with a shut off valve.
3.11. The unit shall be capable of being stored continuously in ambient temperature of 0 - 50deg C and relative humidity of 15-90% without getting rusted.
3.12. Compatible with Input voltage: 240V 50 Hz Single phase AC
3.13. Should have an integrated voltage stabilizer or external servo stabilizer of appropriate ratings meeting ISI Specifications (Input 160-260 V and output 220-240 V and 50 Hz).
3.14. Resettable over current breaker shall be fitted for protection.

Quality standards

3.15. Manufacturing should be compliant with ISO 13485 and ISO 9001:2008.
3.16. Should be compliant with European CE Class IIA and/or US FDA
3.17. Equipment must meet electrical safety specifications of IEC 61010-1

Additional requirements:

Item Code No.	Department	Section	Item Description
LOT 5-68	Laboratory	Hematology	Cryo Bath

3.18. All equipment should specify qualifications for design, installation, operation and performance.
3.19. Validation and calibration reports should have traceability to applicable national and international standards.
3.20. Complete with comprehensive set of spare parts, and a suitable capacity voltage stabilizer and Suitable UPS with maintenance free batteries for minimum one-hour back-up for each equipment should be supplied with the system.
3.21. Warranty for 2 years and CMC/AMC for Three years with spare parts availability.
3.22. The make, rating, model, description, specifications, price quantity of each item should be furnished separately.
3.23. Necessary catalogues, technical write up in English, should be attached with the offer both in hard and electronic copies.
3.24. Performance, efficiency, other factors as applicable should be furnished.
3.25. Demonstration and continued comprehensive training for lab staff and support services till familiarity with the system.
3.26. Should provide electronic and hard copies of User Manual (English), Service manual (English) and Complete construction details with respect to material specification, thickness, finish etc.
3.27. Should provide a set of equipment for providing calibration (eg thermometer) and routine Preventive Maintenance as per manufacturer documentation in service/technical manual.
3.28. Should provide Logbook with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.

LOT 5-69 Water Bath

Item Code No.	Department	Section	Item Description
LOT 5-69	Diagnostic Laboratories	Hematology	Water bath
1. General Description			
To be used in laboratory. Constructed from robust, high grade stainless steel. It should have an inbuilt temperature control and indicator. The unit should be capable of attaining uniform and constant liquid temperature. The unit should be capable of accommodating 150 pieces of test tubes of sizes 16mm diameter each.			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	Temperature range	Adjustable from +7^{o}C to + 80^{o}C	

Item Code No.	Department	Section	Item Description
LOT 5-69	Diagnostic Laboratories	Hematology	Water bath
3.1.2.	Accuracy	± 0.5^{o}C	
3.1.3.	Temperature control	Microprocessor controlled system	
3.1.4.	Display	Digital for temperature and timer.	
3.1.5.	Timer	Auto start/stop, adjustable	
3.1.6.	Liquid temperature uniformity	Constant temperature in the chamber ± 0.2^{o}C	
	Temperature stability	± 0.1^{o}C	
3.1.7.	Interior material	Stainless steel –seamless	
3.1.8.	Heater	Sheet heater mounted on the sides of outside tank	
	Insulation	Glass wool	
	Internal Volume	20 litres	
	Safety Device	Overheat protection device by independent thermostat	
4.	Physical characteristics		
4.1.	Main unit	Bench top, Robust construction and easy to clean	
4.2.	Capacity internal	Approximate 15ltres	
5.	Operating environment		
5.1.	Power Requirements	240V, A/c 50 Hz, Single phase	
	Ambient temperature	10^{o} C to 40^{o} C	
	Relative humidity	20% to 90%	
6.	Accessories		
	Stainless steel lid	1 No.	
	Tube rack φ 16 mm	1 Unit	
6.1.	Lid with holes	1 Unit	
7.	Consumables/Reagents		
7.1.	Nil		
8.	Quality standards		
8.1.	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1	

Item Code No.	Department	Section	Item Description		
LOT 5-69	Diagnostic Laboratories	Hematology	Water bath		
	Conformity to standards	CE and FDA marked			
9.	Local back up service				
9.1.	Available	Should be available locally			
9.2.	Capacity to service equipment	Agent shall have adequate facilities, spare parts, and qualified and skilled technical staff			
10.	Delivery point				
10.1.	See Schedule	For inspection			
10.2.	Hospital	For installation: See hospital schedule			
11.	Pre installation requirements				
	Nil				
12.	Installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
13.	Training				
13.1.	User Training	On site user training on operation and daily upkeep			
13.2.	Maintenance training	Onsite maintenance training on preventive maintenance			
14.	Technical documentations				
14.1.	User manuals	2 Sets			
14.2.	Service Manual	1 Set			
14.3.	Drawings	Nil			
15.	Commissioning				
15.1.	Testing and commissioning of the machine to the satisfaction of the user.				
16.	Warranty				
16.1.	Equipment	Minimum of one year after commissioning on all parts.			
16.2.	Equipment System	Nil			

LOT 5-71 Blood Donor Couches

Item Code No.	Department	Section	Item Description		
LOT 5-71	Diagnostic Laboratories	Blood Transfusion and Apheresis	Blood Donor Units & Couches		
1. General Description					
Blood donor couches, foldable type, suitable for use donation of blood. Should be constructed from aluminum material or chrome plated robust metallic material or similar and equivalent light and non-corrosive material. With adjustable backrest, mechanically controlled and foldable. Should be provided complete with waterproof mattress.					
2. Composition					
2.1.	Main unit Blood Donor couch				
3. Physical Specifications					
3.1.	Main Unit				
3.1.1.	Main unit	Foldable type			
3.1.2.	Backrest adjustment	Provided			
3.1.3.	Dimensions (Overall)	Approx. 1900 mm(L) X 650mm (W) X 750mm(H)			
3.1.4.	Weight to handle	200 kg			
4.	Quality Standards				
4.1.	Manufacturing standards	ISO 9001			
4.2.	Conformity to standards	CE Standard			
5.	Delivery point				
5.1.	See Schedule	For delivery, installation and testing			
6.	Warranty				
6.1.	Equipment	Minimum of one year after delivery			
6.2.	Equipment System	Nil			

LOT 5-72 Blood Components Separation Equipment

Item Code No.	Department	Section	Item Description
LOT 5-72	Diagnostic Laboratory	Hematology	Blood Components Separation Equipment

1. General Description

Blood component separators should be supplied with capacity to fit the bag systems with in-line filters as specified in the relevant section and should offer the following minimum features:

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

3.1. Microprocessor controlled flow regulation for the standardized processing of centrifuged whole blood.

3.2. Integrated sealing heads positioned in the appropriate locations to ensure the proper tube lengths for sterile docking. The tube of the plasma bag should be left as short as possible to avoid breakages after freezing. The sealing heads shall be able to operate automatically according to the programme or on demand as desired.

3.3. A sensor system for:

- 3.3.1. Complete process control.
- 3.3.2. Automated priming of the in-line filters (filter holders to be included if required).
- 3.3.3. Better yield of blood products.
- 3.3.4. Reduced risk of haemolysis.
- 3.3.5. Assurance of quality of the separated components.
- 3.3.6. Alarms to ensure a safe process.
- 3.3.7. The separation programmes should allow flexibility to satisfy customised needs.
- 3.3.8. Should be fitted with auto-taring balances to monitor and record the weight of all blood products (including plasma).
- 3.3.9. Should be capable of interlacing different steps of the procedure for a faster separation time.

3.4. Should feature automatic pressing of air out of the plasma bag.

3.5. Separators should be equipped with a suitable bar code scanner for reading of operator identification badge, the donor number and any other information as required.

3.6. Should be equipped with a graphical user interface for easy, step by step monitoring of the procedure.

3.7. If the bag systems offered include break cannulas that can be opened automatically, the separators should be capable of this procedure. If such is the case; portable openers should also be included in the offer (one with every separator). Automatic breaking of break cannulas should not increase haemolysis.

3.8. The separators should be linked to a data management system, thus permitting recording, and tracking of relevant data in terms of Good Manufacturing Practice

Item Code No.	Department	Section	Item Description
LOT 5-72	Diagnostic Laboratory	Hematology	Blood Components Separation Equipment

(GMP) during blood separation. For this reason, a suitable PC or laptop computer complete with all necessary accessories (including laser printer, printer consumables and paper) as well as licensed software should be included in the offer.

3.9. Detailed directions for use must be included with each separator. Instructions for all addons must also be included (if applicable). Instructions must be available in English language.

3.10. Instructions for use must be version controlled and changes notified by an appropriate means.

3.11. All equipment should be compatible with the local electricity supply

3.12. All equipment is to be FDA /CE certified.

. The supplier shall deliver, install, and commission the equipment specified above in the Blood Processing Laboratory. Acceptance testing means that the machines have been installed, commissioned, validated and integrated within the quality parameters and according to the specifications and conditions of the tender. Validation should include Installation Qualification (IQ), Operation Qualification (OQ) and Performance Qualification (PQ). These tests shall have to be carried out by the supplier alone, jointly with NBTC or by NBTC alone as applicable. The supplier should supply NBTC with test certificates together with details of test results upon which the certificates are based. On successful acceptance, the NBTC shall issue a Certificate of Acceptance, in case the agreed tests are successfully completed.

3.14. On-site training, guidance and support should be provided after the commissioning of the equipment. Certificates of attendance should be presented to all those who attend the full training sessions.

3.15. Should ensure availability of application specialist

LOT 5-73 Micro Pipettes - single –channel

Item Code No.	Department	Section	Item Description		
LOT 5-73	Diagnostic Laboratories	Hematology	Micro Pipettes - single –channel		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Description of the medical supply unit design type					
Pipettes, Single Channel, Variable volume 0.5-l0ul Pipettes, Single Channel, Variable volume 10-100ul Pipettes, Single Channel, Variable volume 20-200ul Pipettes, Single Channel, Variable volume 100-I000ul Variable volume micropipette 2-20ul Variable volume single channel micropipette 0.5-5000ul					

Item Code No.	Department	Section	Item Description
LOT 5-73	Diagnostic Laboratories	Hematology	Micro Pipettes - single –channel

Single Channel Pipette - Variable Volume

3.1. Pipette is light weight with high precision, robust and dependable.
3.2. ISO 8655 certified
3.3. Compatible with universal tips
3.4. Should have effortless one hand operation: Volume setting, Volume locking, Pipetting and tip ejection - all operations with the same hand.
3.5. Easy maintenance: Dismantle & reassemble without any tools, all parts should be replaceable.
3.6. Display: Should have 4 position volume display, with an integrated lens for better visibility of the volume, display always visible and facing the user during operation.
3.7. MOC (Material of Construction): Corrosion resistant piston and sealing material, to allow uniform and smooth pipetting.
3.8. Sterilization: Completely autoclavable at 121°C (20 min) without disassembly for maximum protection from contamination.
3.9. Volume range & quantity: as specified

Range	Total Qty	Maximum permissible system error (at 100% Vol)	Max. Permissible Random error (at 100% volume)
0.5-10ul	04No	+-1%	+-0.4%
10-100ul	04No	+-0.8%	+-0.2%
100-1000ul	13No.	+-0.6%	+-0.2%
2-20ul	04No.	+-1%	+-0.3%
20-200ul	09No	+-0.6%	+-0.2%
0.5-5000ul	02N0.	+-0.6%	+-0.2%

3.10. identification: Individual serial number engraved on the instrument and also has Individual labelling area for user specific identification.
3.11. Manuals: Each instrument will be provided with user manual which has pictorial description of all operations, limitations, and functions.
3.12. Each piece should be accompanied with Certificate of conformity and Calibration certificate having Uncertainty measurements
3.13. Should provide annual service and calibration

LOT 5-74 Micro Pipettes - Multi -channels

Item Code No.	Department	Section	Item Description
LOT 5-74	Laboratory	Hematology	Micro Pipettes- Multi-channels

1. General Description

Multichannel Pipettes (Micropipette - 50µl variable Vol., Micropipette - 200µl variable Vol., Micropipette - 1000µl variable Vol.)

Compliance on each parameter with detailed substantiation how the offered product meets the requirement. (Simply writing as YES/ Complied/ As per FDA/CE/ISO terms is not allowed)

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

A). Micropipette - 50µl variable Vol.

3.1. Variable Volume Micropipettes feature built-in tip ejectors and autoclavable tip cones.

3.1.1. Should work on a click-stop digital system, are easy to calibrate and maintain, and easy to disassemble for autoclaving.

3.1.2. Manufactured as per ISO 9001:2015,. Each pipette should be individually calibrated according to ISO 8655 standards

3.1.3. Calibration certificate must be provided with each pipette.

3.1.4. Accuracy and Precision values should be those laid down in the ISO 8655 standards.

3.1.5. Built-in, streamlined tip ejector facilitates easy tip ejection and access to narrow necked bottles and tubes.

3.1.6. Variable Volume Pipette: 5-50 µl

3.1.7. Increments [µl]: 0.5

3.1.8. Volume [µl]: 5.0 to 50.0

3.1.9. Accuracy (±) %: 2.5 to 0.7

3.1.10. Precision (±) %: 1.5 to 0.3

B). Micropipette - 200µl variable Vol.

3.2. Variable Volume Micropipettes feature built-in tip ejectors and autoclavable tip cones.

3.2.1. Should work on a click-stop digital system, are easy to calibrate and maintain, and easy to disassemble for autoclaving.

3.2.2. Manufactured as per ISO 9001:2008,. Each pipette should be individually calibrated according to ISO 8655 standards

3.2.3. Calibration certificate must be provided with each pipette.

3.2.4. Accuracy and Precision values should be those laid down in the ISO 8655 standards.

3.2.5. Built-in, streamlined tip ejector facilitates easy tip ejection and access to narrow necked bottles and tubes.

3.2.6. Variable Volume Pipette: 50-200 µl

Item Code No.	Department	Section	Item Description
LOT 5-74	Laboratory	Hematology	Micro Pipettes- Multi-channels

3.2.7. Increments [µl]: 1
3.2.8. Volume [µl]: 50 to 200
3.2.9. Accuracy (±) %: 0.6 to 1
3.2.10. Precision (±) %: 2 to 0.3

C). Micropipette - 1000µl variable Vol

3.3. Variable Volume Micropipettes feature built-in tip ejectors and autoclavable tip cones.
3.3.1. Should work on a click-stop digital system, are easy to calibrate and maintain, and easy to disassemble for autoclaving.
3.3.2. Manufactured as per ISO 9001:2008,. Each pipette should be individually calibrated according to ISO 8655 standards
3.3.3. Calibration certificate must be provided with each pipette.
3.3.4. Accuracy and Precision values should be those laid down in the ISO 8655 standards.
3.3.5. Built-in, streamlined tip ejector facilitates easy tip ejection and access to narrow necked bottles and tubes.
3.3.6. Variable Volume Pipette: 200-1000 µl Increments [µl]: 5
3.3.7. Volume [µl]: 200 to 1000
3.3.8. Accuracy (±) %: 0.9 to 0.6
3.3.9. Precision (±) %: 0.3 to 0.2

Micropipette - 1000µl variable Vol.

3.4. Robust yet light and easy to use
3.4.1. High chemical and UV resistance
3.4.2. Fully autoclavable
3.4.3. Optiload mechanism, Volume setting by click stops
3.4.4. Suitable for both left and right-handed
3.4.5. Compatible with a wide range of tips
3.4.6. Compatible with most commonly used lab tubes due to slim tip ejector collar
3.4.7. Safe-Cone Filter to prevent contamination and damage of pipette
3.4.8. Volume range color-coding for easy pipette and tip selection
3.4.9. Only 2-3 parts to disassemble and clean
3.4.10. FDA /CE marked
3.4.11. 2-year warranty
3.4.12. Volume Range: Multichannel pipette (8 channels) 30-300 µl
3.4.13. Increments [µl]: 0.20 µl
3.4.14. Volume [µl]: 300, 150 , 30 µl
3.4.15. Accuracy (±) %: 0.60,1.00, 2.00 %
3.4.16. Precision (±) %: 0.25, 0.50,1.00 %

LOT 5-75 Automated Immunohematology Platforms-Screening, Grouping

Item Code No.	Department	Section	Item Description
LOT 5-75	Diagnostic Laboratories	Hematology	Automated Immunohematology Platforms-Screening, Grouping

1. General Description

Specification for Fully Automated Blood Bank Immunohematology

S/No.	Specification	Remarks
1	Should be a Fully Automated Continuous Random-Access system.	
2	System should be covered to avoid dust contamination.	
3	System should have two separate pipetting arms for pipetting the reagents and samples	
4	Should have STAT facility for emergency samples.	
5	System should automatically read barcodes over different plate and card individually or simultaneously.	
6	System should be based on column agglutination/microplate Technology.	
7	System should be able to perform blood grouping, coombs test, cross- matching, antibody screening, Antibody Identification, and minor red cell antigen phenotyping.	
8		
9		
10	.	
11	System should be able to check on board reagent inventory before starting the run and alert in case of absence of reagents.	
12	System should be able to perform the test even with single sample.	
13	Cards/Plates should be room temperature stable preferably.	
14	System should have facility to load plates/cards continuously during the run.	
15	Should have Continuous refilling of system liquid (without interruption) and waste removal.	
16	System should have different security levels for different users of the system.	

Item Code No.	Department	Section	Item Description
LOT 5-75	Diagnostic Laboratories	Hematology	Automated Immunohematology Platforms-Screening, Grouping

17	Should be able to give grading of reaction for choosing best compatible blood in cases of multiple transfusions.	
18		
19	System should be able to run multiple parameters at the same time without compromising the throughput or efficiency of the system.	
20	The firm will supply the UPS with at least 1 hour backup system along with system.	
21	The firm will install the machine and Provide warranty for at least 2 years within which they will take care of regular services, maintenance, repair in order to ensure the proper functionality of the equipment. The firm will also guarantee provision of CMC post warranty period for at least five (5) years..	
22	Cost per reportable test including the price of startup and shut down, consumption of reagents, card/plate and other reagents (diluent, buffer control, calibrator, cleaner, washer and other reagent required) and consumables like tips or cuvette or any other accessories required for the enclosed parameters according to mentioned number of tests must be quoted and the rate will be frozen for 5 years and will be considered for price bid comparison.	
23	The firm should provide rate certificate from any Govt. Institution where similar equipment has been installed.	
24	Original literature along with the user's list should be attached with the satisfactory report for the last three years from three users with contact detail. The firm should provide the details of after sales and service and application backup.	
25	Demonstration and onsite training of staff up to their satisfaction by the application experts is an absolute must. The firm must have an application specialist and service engineer locally.	
26	The equipment should be able to run under the existing electrical provision of 220-240V	
27	The firm should provide the life cycle cost (LCC) analysis report which includes not only the initial acquisition cost but also cost of operation, maintenance, and disposal during the lifetime of the external resources procured.	

LOT 5-78 Apheresis- Therapeutic Plasmapheresis (2 pieces)

Item Code No.	Department	Section	Item Description
LOT 5-78	Diagnostic Laboratories	Blood Transfusion and Apheresis	Apheresis- Collection

General Description

A:Performance and Safety Requirements for the Period of Placement

1. General description:

For donation of components of blood directly from the blood/component donor

2. Composition

Main Unit Floor standing or Bench top

3. Functional Specifications

- Have facility for all blood component collection including peripheral blood stem cells, with either or both single and double access, and also therapeutic plasmapheresis, leukapheresis, erythrocytapheresis.
- Fully automatic, microprocessor controlled and with continuous flow separator during both single and double access.
- Help screen available, trouble shooting menu, alphanumeric display and extended memory.
- Able to perform priming with normal saline or with mixture anticoagulant and self test.
- Inbuilt cuff pressure and prompt grip.
- Should have auto-cuff mechanism for automatic inflation and deflation.
- In case of inlet line occlusion, cell separator should be able to restart automatically.
- Should have fluid leak detector for donor safety.
- Should have provision for saline re-infusion to donor/patient.
- Extracorporeal volume at dual access should not be more than 200 mL.
- Should be able to regulate ACD-A delivery, should not have bolus return of blood to ensure reduced citrate reaction for donor safety and comfort.
- Should have a data port to enable the equipment to be connected to a printer.
- UPS compatible to complete one cycle in case of power failure.
- Automatic door lock for centrifuge during the procedure.
- Interface detector should be able to continuously monitor the collection line to avoid any contamination during each protocol.
- Should have inbuilt blood warmer.
- Should have a totally closed system.
- Lockable castors/wheels for mobility.
- Protocols for blood component separation and peripheral blood stem cells should be provided.
- Single disposable kit should be adaptable for all donors/procedures and should be self sufficient in terms of collection bag, transfer pack, needles, anticoagulant and normal saline.

Should have automated kit loading facility

4 **Physical characteristics**

Item Code No.	Department	Section	Item Description
LOT 5-78	Diagnostic Laboratories	Blood Transfusion and Apheresis	Apheresis- Collection

4.1 Main unit — Floor standing or Bench top
Robust construction and easy to clean

5. **Operating environment**

5.1 Power Requirements 240V, A/c 50 Hz single phase or three phase 415V , 50Hz

5.2 Ambient temperature 10o C to 40o C

5.3 Relative humidity 20% to 90%

6 Accessories

6.1 1.25 X Unit power rating UPS

B Reagents and Consumables Supply

9. Reagents, Kits, Controls & calibrates must be provided to handle 3,000 apheresis donations annually per facility per year for the contract period

C. Comprehensive Maintenance and Repair

7 **Spare parts**

7.1 Manufacturer's recommended set of spare parts

8. Local back up service

8.1 Available — Should be available locally

8.2 Capacity to service equipment — Agent shall have adequate facilities, spare parts, and reagents and qualified and skilled technical staff to maintain and service the equipment as scheduled

10 **Quality standards**

10.1 Manufacturing Standards. — IEC 60601-1, ISO 9001, ISO 13485 **KMLTTB approval required**

10.2 Conformity to standards — IVD- Directive 98/79/EC ,CE and FDA marked

10 **Delivery point**

10.1 See Schedule — For inspection, installation, commissioning and training

11 **Pre installation requirements**

12 **Installation and testing**

Complete installation and setup of the machine at designated Laboratories as per manufacturer's instructions

D Training

13.1 Specialized User Training of staff on operation, daily up keep on preventive maintenance and trouble shooting

13.2 Maintenance training of Medical Engineering Technologist on preventive maintenance, trouble shooting and repairs

14 **Technical documentations**

14.1 User manuals — 2 Sets

14.2 Service Manual — 2 Set

Item Code No.	Department	Section	Item Description
LOT 5-78	Diagnostic Laboratories	Blood Transfusion and Apheresis	Apheresis- Collection

14.3 Drawings Nil

15 **Commissioning**

Testing and commissioning of the machine to the satisfaction of the user.

16 **Warranty**

16.1 Equipment For the period specified in the contract.

LOT 5-81 Multihead Microscope for reporting (10 Header)

Item Code No.	Department	Section	Item Description
LOT 5-81	Diagnostic Laboratories	Anatomic Pathology	Multihead Microscope for reporting (10 Header)

1. General Description

Penta Head Microscope Specifications

DECA HEAD TEACHING MICROSCOPE

Technical Specification: -

1.1. Microscope Frame: Upright microscope with Built in Koehler illumination for transmitted light LED (pre centered) uniform distribution, with lifespan of at least 50,000 hrs. or more (higher will be preferred).

1.2. Observation tube and Eyepieces: Main Head: Trinocular observation tube with three-way light distribution (100:0, 20:80, 0:100), have 25MM FOV or more. Teaching Head: Binocular teaching heads siedentopf type for ten-person including main observer.

1.3. Eyepiece: Main observer: 10X magnification with F.O.V 25mm - 2 nos or more. With both side diopter adjustment facility. LED arrow pointer tricolour, joy stic should be provided by supplier Teaching head: for 1+9, 10X magnification with F.O.V minimum 25mm with both side dioptre adjustment facility.

1.4. Mechanical Stage: Ceramic coated coaxial stage with right-hand drive control with two slide holder.

1.5. Condenser: High quality swing out universal turret condenser for all application.

1.6. Nosepiece: Reversed Sextuple (Six position) revolving nosepiece.

1.7. Objectives: High performance objective should be suitable for bright field and polarizing application. Plan Fluor2/2.5, Plan Flour 4X 0.13, Plan Fluor 10X0.30, Plan Fluor 20X0.50, Plan Fluor 40X 0.75, x63, Plan Fluor 100X1.30. Should provide required accessories for polarizer and analyzer for simple polarising.

1.8. Teaching attachment: Teaching Head for Ten person including main observer. with eyepiece pointer 360 degree rotable and should have color variation and intensity control feature.

1.9. Should provide 5 years' warranty and 5 years CAMC.

Item Code No.	Department	Section	Item Description
LOT 5-81	Diagnostic Laboratories	Anatomic Pathology	Multihead Microscope for reporting (10 Header)

1.10. Bidders should have Service track record for at-least 10 years. Should provide list of installation and there after satisfactory performance letters from reputed government medical colleges/ medical teaching Institutions and preferably from Department of Pathology of concerned institution.
1.11. Microscope and accessories should be fully manufactured by the principal company. Should provide at least 20 spare bulbs free.
1.12. Should quote latest model as per above specification.
1.13. Demonstrations may be asked if required.
1.14. Compliance report to be submitted in a tabulated and point wise manner clearly mentioning the page and para of original catalogue.
1.15. List of important spare parts and accessories should be available for next 10 years.
1.16. Vinyl dust cover for entire unit, immersion oil minimum100ml and other necessities for installation and commissioning of instrument should be provided by supplier only at their own cost.
1.17. Installation and commissioning of equipment to be done at suppliers' own cost
1.18. Certification- US FDA/ CE certified and should meets international quality standard.

LOT 5-82 Grossing station, with ergonomic capacity (e.g. hydraulics) and integrated computing photography

Item Code No.	Department	Section	Item Description
LOT 5-82	Diagnostic Laboratories	Anatomic Pathology	Grossing station, with ergonomic capacity (e.g. hydraulics) and integrated computing photography

1. General Description

Grossing station Specifications

1. Should be constructed from high-quality stainless steel.
2. The elevating switch should be located on the front of station and allows the unit to elevate from 32" to 44" (81.3 cm to 111.8 cm).
3. A large 19" x 8 ¾" x 14" (48.3 cm x 22.2 cm x 35.6 cm) sink with radiused corners should be built in the station.
4. The sink also houses a mixing faucet with a gooseneck spout. The mixing faucet should be operated by foot controls and comes with built in vacuum breaker protection.
5. Vacuum breaker protected water supply preventing contaminated water from getting into the potable water or the natural drinking water.
6. The water temperature should controlled by the mixing valve located inside the sink cabinet.

Item Code No.	Department	Section	Item Description
LOT 5-82	Diagnostic Laboratories	Anatomic Pathology	Grossing station, with ergonomic capacity (e.g. hydraulics) and integrated computing photography

7. Should have 0.65 Horse Power disposal. When activated, the heavy duty motor runs on a continuous basis and has a manual reset overload switch if needed.
8. The dissecting area rinse should be provided with a constant flow of water to remove debris from the work area to the sink. The rinse can be operated by foot controls.
9. A polyethylene dissecting board should be included to assist with specimen grossing. The durable white surface provides an excellent background for cutting specimens.
10. Grossing Stations should have facility to be ducted to an outside ventilation system for removal of hazardous fumes, vapors and odor.
11. The GFIC waterproof electrical receptacles should be available on quoted model and are located on the front of each station for easy accessibility.
12. A flex arm halogen light is mounted on the station to direct focused light over the work area. The flexible arm allows the light to be adjusted in a variety of positions.
13. The recessed halogen lighting provides proper lighting across the entire work area for better illumination.
14. A stainless steel, braided, handheld spray nozzle with thumb control should be located in the sink area near the mixing faucet. Depress the thumb control to start the water flow. A manual shut off valve should be located under the sink in case of an emergency. Easily accessible control panel.
15. Should have fluorescent magnifier lighting
16. Should be supplied with formalin container with spigot for user convenience while grossing procedures.
17. A magnetic instrument holder should be mounted on the front of the station to store and organize common tools within arm’s reach
18. A standard c-fold paper towel holder should be available
19. Should consist of perforated exhaust grid on the equipment
20. Should have facility for end rinse with control valve
21. Digital SLR Camera with 18-55 lens, CMOS Sensor, 16 GB card for recording good quality of photographs with computer inter phase (18.0 Mega Pixel) with HDMI cable
22. Should be USFDA /CE/ISO/BIS approved system

LOT 5-83 Electron Microscopy

Item Code No.	Department	Section	Item Description
LOT 5-83	Diagnostic Laboratories	Anatomic Pathology	Electron Microscopy and related workflows

1. General Description

Electron Microscopy and related workflows Specifications

S. no	Parameter	Description
1.1.	**Electron Source**	Tungsten filament
1.2.	**Resolution**	High Vacuum: 3nm or better at 30kV; 8.0 nm or better at 3 kV ;15nm or better at 1kV Low Vacuum: 3nm-4nm or better at 30kV
1.3.	**Accelerating voltage**	0.2-0.5 kV to 30kV or better
1.4.	**Magnification**	Up to 300,000x or better
1.5.	**Probe current**	upto 1 uA or better
1.6.	**Detectors**	SE (secondary electron detector), & BSE (backscatter electron detector) Back scatter Detector should give composition, topography and shadow image as well
1.7.	**Low vacuum range**	10Pa to 100 Pa or better High vacuum to low vacuum changeover: There should not be any manual aperture insertion / part insertion to convert high vacuum mode to low vacuum mode and vice versa
1.8.	**Maximum sample diameter and height**	120-150 mm diameter or better, 48mm height or better
1.9.	**Number of ports**	SEM chamber must have 06 or more ports
1.10.	**Stage motorization**	5 axes or better fully motor drive Eucentric stage X = 80mm or better, Y = 40 mm or better, Z = 42 mm or better Tilt: - 10° to 90° or better Rotation: 360° endless
1.11.	**Specimen stage**	2 axes or better fully motor drive Eucentric stage
1.12.	**Image format**	BMP, JPG, TIFF
1.13.	**Image pixels**	3000 x 2300 pixels or better
1.14.	**PC**	Latest PC has to be provided preferably Touch screen monitor: 23 inch or better LCD/LED touchscreen, Windows 10 or latest

Item Code No.	Department	Section	Item Description
LOT 5-83	Diagnostic Laboratories	Anatomic Pathology	Electron Microscopy and related workflows

1.15.	**Auto functions**	Automatic focus, Automatic stigmator, Automatic contrast and brightness. Provision of gun alignment through software.
1.16.	**Pumping system**	Fully Automatic Turbo Molecular Pump with Rotary Pump
1.17.	**EDS**	**EDS System :-** The EDS system should include the LN2 free Silicon Drift Detector (SDD) having SDD area of at least 30mm2 or more. EDS detector Energy Resolution : ≤ 129eV or better.
1.18.	**Sputter Coater**	Sputter Gold,platinum and palladium coater to be provided for coating non-conductive samples Coater with touch screen and digital display for adjusting all coating parameters like coating time, current etc. It should display all coating parameters.
1.19.	**On site Installation and pre installation requirement**	Vendor has to do installation onsite. Vendor has to visit the site for physical inspection after the order and has to do site survey for vibration, magnetic field etc. and guide for necessary requirements
1.20.	**Warranty**	At least two years from the date of installation
1.21.	**Latest model and new technology**	Quoted SEM model should be a globally sold model and it should be available on all global websites of manufacturer, model quoted should not be a country specific.
1.22.	**Training and** **Support**	On-site training must be provided by factory trained engineer at the buyer's site free of cost. Additional training to be provided after 3 months of installation. Service response time must be within 72 hours. There should be provision of remote diagnostics with internet connectivity (online support)
1.23.	**Required Documents**	Standard samples for calibrating spatial resolution and calibrating

Item Code No.	Department	Section	Item Description
LOT 5-83	Diagnostic Laboratories	Anatomic Pathology	Electron Microscopy and related workflows
	along with technical specifications	EDS. The supplier must have sold at least 10 SEM System Installed in academic and major health institutions in the last 5 years.	

LOT 5-87 Cryostat Microtome and related frozen section workflows

Item Code No.	Department	Section	Item Description
LOT 5-87	Diagnostic Laboratories	Anatomic Pathology	Cryostat Microtome and related frozen section workflows
1. re-do to match specifications of the equipment 2. General Description			
3.			

LOT 5-88 Histopathology processing workflows

Item Code No.	Department	Section	Item Description
LOT 5-88	Diagnostic Laboratories	Anatomic Pathology	Histopathology processing workflows
4. re-do to match specifications of the equipment 1. 2. General Description			
1. Automated Formalin Dispensing System, situated at the operating theaters (2 are sufficient) • Automatic fixative loading, at preset ratio • Dispensing area with ventilation, locked during dispensing step • Additional ventilation localized in the dosing spot during filling step • Possibility to select the tank to be used and allow the use of different fixative/solutions simultaneously • Easy to use and error proof thanks to bucket centering system with presence sensor • Large capacity: 4 tanks in the drawer for up to 40-80L maximum plus one external tanks/containers of the desired capacity. Front drawer for easy access			

Item Code No.	Department	Section	Item Description
LOT 5-88	Diagnostic Laboratories	Anatomic Pathology	Histopathology processing workflows

- Active Safety with sensor for correct positioning of injector in the bucket, anti-spillage sensors and full bucket sensor
- Injector with anti-drip valve
- Embedded germicidal UV-C lamp with manual and automatic cycles
- User log-in with barcode scansion
- Four buckets sizes (1, 3, 5 and 10 Lt)
- Preset programs, user-customizable for a variety of formalin/specimen ratio
- Specially designed one-way safety valve, with non-return closure
- Active XL charcoal filters (approx. 28kg) and HEPA filter on board (Efficacy report available). Connection to exhaust
- Built in slot for data logger card for sample, time & temperature traceability
- Cases identification and tracking: 1D and 2D barcode scanner built in for automatic reading of Cases ID and buckets ID*
- Remote monitoring and integrable to LIS
- Specimen data automatically saved and printed on a sticker
- Antimicrobial painting

2. **CASSETTE PRINTER (2 are needed)**

- Printing technology: Thermal transfer
- Collection technology: Robotized arm
- Printing speed: 5 cassettes/minute or better
- Printing resolution: 300 dpi
- Ink type: Resin thermal transfer
- Ribbon type: Print kit black: about 5,000 prints
- Printable colors: 8 solid colors, others are available through color combination and dithe
- Loader capacity: 40 biopsy cassettes
- Loader number: 4 Loaders (up to 16 loaders manageable)
- Output capacity: Up to 7 cassettes (without tray) 10 cassettes for each tray
- Construction: Iron and Plastic
- Data interface: USB 2.0
- Power requirements: compatible with 240V AC, 50/60 Hz, 60watts

Accessories Needed:

- Tissue biopsy embedding cassettes: 10,000 pieces needed.

3. Ergonomic Grossing Station (1 is sufficient)

- Workbench structure entirely made of corrosion-resistant stainless steel AISI 304, scotch brite finish.

Item Code No.	Department	Section	Item Description
LOT 5-88	Diagnostic Laboratories	Anatomic Pathology	Histopathology processing workflows

- Working trays made of high corrosion-resistant stainless steel AISI 316, for a longer durability to corrosion.
- Sliding out glass protective shield for operator safety during dissection procedures.
- Electronical height adjustment workbench (90-120cm) for improving posture during working shift.
- Fully customizable working area, allowing a series of different operator set-ups.
- Single operator mode use: operator in central, right or left position.
- Double operator mode use: double operator configuration with central water basin.
- High efficient fumes extraction system, combination of vertical downdraft and horizontal backdraft flow.
- Protection against biological risk: the unit is tested according to the European Norms UNI EN 12469 (Annex C), and satisfies the essential requirements for bio-safety aspects in the working area.
- Protection against chemical risk: the unit is tested according to the European Norms UNI EN 14175
- Unit mobility through heavy duty wheels.
- Antimicrobial powder coating to assure the utmost protection against the proliferation of microorganisms in operating rooms and pathology labs.
- Magnetic tool bar to store frequently used cutting tools.
- Built-in touchscreen monitor that displays several settings, such as airflow speed, filters status, user logged and hardware warning.
- Safety alarm: the unit advises the user with a red light in case of airflow values lower than permitted.
- Built-in keypad to command height adjustment, illumination and extraction speed.
- Connectivity: LIS compatible and network ready.
- LED light illumination of the whole dissecting area.
- Automatic formalin dispensing system with foot pedal control.
- Enhanced formalin draining system with built-in funnel and dedicated exhaust tank, with maximum level alarm.
- Built-in macro digital imaging camera and system for full documentation of surgical specimen grossing, with integrated annotation and automated sizing features.

Accessories Needed:

1. Grossing Boards (2 needed).
2. Grossing knives, two sets of 5 knives, each with 50 disposable blades.
3. Grossing (Trimming) forks (10 Needed).
4. Forceps (toothed, untoothed), Grossing (Trimming) scissors with changeable tips (10 needed).
5. Pathology Grossing Rulers

4) Lean High- Throughput Tissue processor (MAIN PROCESSOR, TISSUE PROCESSING AND EMBEDDING CAN BE DONE HERE)

Item Code No.	Department	Section	Item Description
LOT 5-88	Diagnostic Laboratories	Anatomic Pathology	Histopathology processing workflows

- Rapid on demand processing: <50 mins for needle biopsies (fixation included)
- High productivity: up to 300 cassettes, 24 SuperMega cassette, 40 slim SuperMega cassette
- No limits in samples thickness with both Standard and SuperMega cassettes
- Xylene and Xylene-free protocols*; Formalin and formalin-free protocols*
- Open reagent system (no proprietary reagents) and possibility of alternative Fixative
- Direct reagents exchange procedure via 5L commercial tanks
- Bar Code Checks*
- No Down time for Reagents Exchange as possible to be done in Process
- On-Board reagent quality sensor*
- No tissues pre-treatment*
- Fully automatic processing with continuous loading
- Robotic rack transfer to paraffin cavity; No wax transfer
- Neither down time for post run cleaning cycle nor wax transfers
- Hybrid heating system: electric resistance + microwave heating for an optimized processing
- Paraffin always ready to use (no pre-heating cycle needed – auto re-filling)
- Triple cavity system with a dedicated impregnation and wax refilling cavity (Magnus plus)
- Isolated and vented working area with charcoal and dust pack filters*
- Easy and intuitive software, icon driven*
- Visual unit status via LED lights
- UPS module and Safe Mode as tissue protection procedure in case of power failure*
- Antimicrobial powder coating
- 24/7 Remote system surveillance
- Batch samples' tracking
- Automatic Embedding system for an All-in-One system

Accessories Needed:

Embedding Molds: 100 pieces needed, 30 for small biopsies, 50 for medium sized biopsies, 20 for large biopsies.

5. Hybrid Tissue Processor (BACKUP PROCESSOR). TISSUE PROCESSING AND EMBEDDING CAN BE DONE ON THE SAME SYSTEM

- Rapid on demand Automatic processing: <50 mins for needle biopsies (fixation included)
- High productivity: up to 300 cassettes, 24 SuperMega cassette, 40 slim SuperMega cassette
- No limits in samples thickness with both Standard and SuperMega cassettes
- Xylene and Xylene-free protocols*; Formalin and formalin-free protocols*
- Direct use of Commercial 5L or 1Gal tanks for either processing and reag exchange

Item Code No.	Department	Section	Item Description
LOT 5-88	Diagnostic Laboratories	Anatomic Pathology	Histopathology processing workflows

- Open platform (no proprietary reagents) without built-in processing tanks
- Direct reagents replacement procedure*
- Tanks replacement Bar Code checks for preventing wrong positioning, eliminating manual records
- No Down time for Reagents Replacement: tanks exchanges possible in process.
- Continuous batch loading with Dual Mode
- Neither down time for cleaning cycle (in Dual Mode)
- Hybrid heating system: electric resistance heating + microwave heating
- No tissues pre-treatment*
- Isolated and vented working area with charcoal and dust pack filters*
- Easy and intuitive software, icon driven*
- UPS module and SafeMode as tissue protection procedure in case of power failure*
- Double cavity system (with a dedicated impregnation cavity).
- Antimicrobial powder coating
- 24/7 Remote system surveillance
- Sample tracking system (MILEWATCH ™ or equivalent.
- Automatic Embedding system for an All-in-One system (SYNERGY ™ OR EQUIVALENT)-OPTIONAL

11) EMBEDDING WORKSTATION (MANUAL EMBEDDING STATIONS ARE BACKUPS WITHIN THE TISSUE PROCESSORS. TWO EMBEDDING STATIONS ARE NEEDED. CA INTERGRATED FUNCTION.

- Capacity up to 300 cassettes
- Paraffin tank of 5 Liters
- Programmable heating
- Reservoir and Conduits always heated
- Dispenser compatible with Mega and Super Mega cassettes.
- Two built in paraffin trimmers
- Membrane Keys
- Case traceability with scanners useful for tracking specimens
- Capacity up to 400 molds
- Illuminated with white LED, LCD touch screen
- Paraffin Dispenser with operating temperature from 40'to 70'c
- Foot switch and Pre- filter for melted paraffin
- Cold plate Operating temp 0'c to 12'c
- Large cooling Surface
- Selectable temperature
- Stand- alone operation possible

Item Code No.	Department	Section	Item Description
LOT 5-88	Diagnostic Laboratories	Anatomic Pathology	Histopathology processing workflows

12) MICROTOME (FIVE STATIONS ARE NEEDED)

- User interface available in a full color TFT 7" display with PCAD (projective capacitive)
- Touchscreen.
- Integrated ergonomic armrest.
- Button Memory function (MEM).
- Smooth-working handwheel to minimize muscle strain.
- Big capacity and easy to mount waste tray. Ergonomic design that includes surface for ar
- Automatic fixation of the knife carrier to the microtome base (patent pending)
- Removable lever for locking the clearance angle of the blade holder. Design without leve and ease of use.
- 'Blade holder can be moved sideways both to the right and the left for an optimal use of t
- Equipped with a specimen orientation head that works with different specimen clamp typ
- Change system thanks to the blocking mechanism.
- Indication of 0-position in x and y direction by palpable click for the precise position of t specimen.
- Cutting-edge design of the specimen clamp that prevents building up of dirt and facilitate the microtome.

Accessories Needed:

Microtome blades, compatible with selected microtome. 10,000 pieces

15) SLIDE PRINTER

- Printing technology: Thermal transfer
- Collection technology: **Robotized arm**
- Print speed: **Up to 12 cassettes/minutes**
- Print resolution: 300 dpi
- Ink type: Resin thermal transfer
- Ribbon types: Print kit colour: **1.000 prints**
- Print kit black: **about 5.000 prints**
- Printable colors: 8 solid colors, others are available through color combination and dith
- Loader capacity: 40 biopsy cassettes
- Loader number: 4 loaders (up to 16 loaders manageable)
- Output capacity: Up to 7 cassettes (without tray)
  10 cassette for each tray
- Construction: Iron and plastic
- Cabinet color: Medical white
- Data interface: USB 2.0

Item Code No.	Department	Section	Item Description
LOT 5-88	Diagnostic Laboratories	Anatomic Pathology	Histopathology processing workflows

- Power requirements: **100 – 240 VAC, 50 – 60 Hz, 60 watts**

17) FLOATATION BATH (5 STATIONS NEEDED)

- Casing made stainless steel
- Dazzle-free water surface illuminated from below
- Pyrex removable glass tray
- Digital electronic temperature control with probe and safety interlock
- Generous surface for slides accommodation
- Dimensions: 330x400x125mm (WxDxH)
- Working temp range: from room temperature to 60'c

18) STRETCHING TABLE (HOT PLATE) (5 STATIONS NEEDED)

- Safe and great drying
- Electronic temp control adjustment and indication via a digital display
- Safety the thermostat dial
- Dimensions: 250x200x80mm (W x D x H)
- Working temp range: from room temperature to 70'c

10) AUTOMATED STAINER, HEMATOXYLIN AND EOSIN

- Through up to 240 slides per hour
- Continuous loading and unloading of slides
- In-built automated cover slipper (integrated cover slipper)
- Full Automation from Baking to Drying
- Integrated baking and Heating, with minimum capacity of 120 slides,12 racks from 50'-7
- In built vacuum exhaust to extract xylene fumes

- System should be mobile for Laboratory space efficiency.
- Intuitive software to facilitate rapid start up and operation.
- Automated tank filling and disposal into closed containers.
- Incorporation of reagent management system (RMS)
- Allows use of ready To use reagents.
- The system must have CE/ FDA Certification.
- Standardized validated protocols

Item Code No.	Department	Section	Item Description
LOT 5-88	Diagnostic Laboratories	Anatomic Pathology	Histopathology processing workflows

- Automated reagent handling system (RMS)
- Touch Screen.

11. **AUTOMATED STAINER for SPECIAL STAINS**

- Compact benchtop workstation
- Touch screen computer system with Link
- Four separate Waste containers
- Risk management compliance
- Barcode reading for reagents and slides
- LAN and LIS Connectivity
- Automates the process of slide drying and dewaxing onboard
- Total reagent capacity; minimum of 50 reagent packs
- Reagent waste capacity; Two 2L bottles, two 4L Bottles, or better
- Bulk fluid capacity; Six 1L bottles, or better.

5) Cryoembedding System for Frozen Sections (TWO REQUIRED)

- Patented face down technique allowing a perfectly "flat plane" surfaces which does not requires trimming.
- Only 60 seconds to freeze up to 6 specimens simoultaneously.
- Antimicrobial powder paints.
- Stirling cooler freezing module, maintenance free
- No dangerous solution used to freeze sample. No liquid nitrogen, no CO2, no isopentane. No operation inside the cryostat chamber during the freezing step. HEPA cap filter.)
- Operator Independent – (Presto Chill ™ or equivalent) has standard and preset protocol to support and guide users to obtain great quality.
- Auto Defrost cycle available with the possibility for delay start in order to avoid any interfere on the routine work.
- Instrument interface: USB port for downloading event logs
- Table top unit, small footprint to be installed easily to small working bench.
- HEPA cap filter
- Anodized aluminium freezing platform to better transmit cold temperature to samples.
- 4,3" touchscreen terminal, 1 USB port
-

6) FlashFREEZE System (TWO REQUIRED)

Standardized and Documented Protocols for Enhanced Tissue Banking Procedures

- Standardized freezing at -80°C for all types of tissues. Suitable for freezing 24/48/96 well plates or random biospecimens.
- Holds vials with a volume of up to 50ml

Item Code No.	Department	Section	Item Description
LOT 5-88	Diagnostic Laboratories	Anatomic Pathology	Histopathology processing workflows

- Safe cause No liquid nitrogen, no isopentane. Histology grade ethanol is used as a heat transfer fluid and is suitable for non-contact freezing procedures of biospecimens or fluids.
- Antimicrobial powder paints.
- only 1 hour and 40 minutes to go from room temperature to the operating temperature of -80°C. Biospecimens are frozen in only 60-150 seconds.
- Instrument interface: USB port for downloading event logs
- Table top unit, small footprint to be installed easily to small working bench.
- HEPA cap filter
- 4,3" touchscreen terminal, 1 USB port
- Anodized aluminium freezing platform to better transmit cold temperature to samples.
- Stirling cooler technology which uses Helium gas as refrigerant in a sealed steel chamber

7) Processor/ Stainer for High-Quality Frozen Section (TWO REQUIRED)

- Standardized frozen slides staining and documented procedure
- It works in continuos loading, Two Racks of 6+6 slides in continuous mode
- Table top vented system, xylene free protocols
- Antimicrobial powder paints.
- Slide processor and stainer all in one.
- LIS ready system, with (MileWatch ™ or equivalent)
- Only 150 seconds for staining 6 slides, or better.
- Instrument interface: USB port for downloading event logs
- Table top unit, small footprint to be installed easily to small working bench.
- Touchscreen terminal

8) Monitor and Control system of Units Throughout the Day and Night

- Allows 24/7 a full control of the units throughout the day and night.
- Events log of the units available anytime.
- It allows a full traceability of the patient ID during the processing step.
- Live interraction with local and remote customer care
- It sends notification though emails, WhatsApp messages and calls for a prompt action to assure trouble-free operations
- It offers the possibility to have open access to Chain of Custody for specimens, beginning in the Operating Theater and continuing until tissues have arrived at the Pathology Lab.
- It makes easier the integration between units and laboratory information system (LIS)

9) CRYOSTAT (TWO REQUIRED)

Item Code No.	Department	Section	Item Description
LOT 5-88	Diagnostic Laboratories	Anatomic Pathology	Histopathology processing workflows

- System with UV lamp decontamination and automatic defrosting.
- Reliable stepping motor technology
- Easy to operate, all function are settable through keyboard.
- Light touch handwheel.
- The touch-screen display gives all unit status in a glance.
- Ergonomic, attractive and modern design features rounded corners and easy-to-use pad control.
- Freezing chamber is wide and spacious.
- Stainless steel chamber
- Expedited Drying Mode
- Automatic specimen retraction
- Adjustable chamber temperature
- Cryochamber features 27 cooled specimen positions

13) AUTOSTAINER (FOR IMMUNOFLUORESCENCE AND IMMUNOHISTOCHEMISTI

- Autostainer is a Compact ,Open System that delivers the flexibility in a Research and Cli
- Environment. Country of origin is U.S.A
- Has the ability to perform all IHC
- Open system
- Compact Bench top system
- Link Software with LIS and LAN connectivity for full lab Integration.
- Fast processing with low turnaround time - 48 Slides with less than 3hours
- Enable parallel processing achieved by performing pre-treated and staining in parallel.
- Incorporates a Pretreatment link system for antigen retrieval
- Automatic separation of hazardous and non- hazardous wastes.
- Broad Portfolio of high quality IVD antibodies.
- Proven Visualization with low complexity and very high sensitivity
- Optimized Validated Protocols and reagents
- System C.E/ FDA Certified.

- Power requirements of 220-240v A/c
- Parallel processing and overnight runs.

13) Digital Scanner

- Slide loading Capacity 250
- Objective type 20x (NA 0.8) and 40x(NA 0.95)
- Bright field scanning Technology: 12mp Camera with Xenon flash illumination
- Optical magnification 41x/82x

Item Code No.	Department	Section	Item Description
LOT 5-88	Diagnostic Laboratories	Anatomic Pathology	Histopathology processing workflows

- Pixel resolution (um/pixel): 0.242/0.121
- Highest bright field scanning speed 35sec(20x)/1min 35sec (40x)
- Native Resolution : 1.25GB (20x) 4.5GB (40x)
- Highest throughput / hour up to 54
- Fluorescence Scanning Technology: Additional 4.2 MP 16bit Camera with 6 channel LED
- Highest Florescence scanning Speed: 5 min@ 31x, 15min@62x
- Dimension (DXDXH. cm): 68x69x55

21) **OVEN**

- Robust, space-saving, low-profile ovens
- Hydraulic thermostat control
- Adjustable chamber ventilation.
- Temperature range: 60°C to 230°C
- Hydraulic thermostat temperature control
- Chamber ventilation valve
- Timer 0 to 120min, with overheat cut-out
- Volume: 28 liters or better

CYTOPATHOLOGY

22) **CytoCentrifuge (TWO NEEDED)**

- Process 12 specimensat one time
- Accepts all protocols
- Lid release mechanism
- Removable program card
- Specimen safety alarm
- Polycarbonate window
- Application in Cytology,microbiology ,Heamatology/oncology
- Control Panel allows user to control power, time and monitor speed.

19) LIQUID BASED CYTOLOGY SLIDE PROCESSOR (TWO NEEDED)

- Liquid Based cytology Methodology
- Prepares Gynecological and Non- Gynecological cytology Specimen.
- FDA Approved
- Programmable memory card
- Filter caps
- Dispenser pump
- Operating Temp 15-32’c / 59-90’F
- Operating Humidy 20%-90% RH non-condensing

Item Code No.	Department	Section	Item Description
LOT 5-88	Diagnostic Laboratories	Anatomic Pathology	Histopathology processing workflows

- Rotary Drive Mechanism
- Pneumatic/ Fluid System controlled by a Microprocessor
- Computer controlled positioning and Positive air Pressure
- User friendly

BIOREPOSITORY

20) UNDER-VACUUM BIO SPECIMENS TRANSFER SYSTEM

- Large vacuum cavity of 22L entirely made of corrosion-resistant stainless steel AISI 304
- Application of vacuum via indirect air suction. Electronic vacuum control sensor "EVC" for best gas/vacuum performance in any atmospheric / altitude condition
- Cases identification and tracking: 1D and 2D barcode scanner built in for automatic reading of Cases ID and bags ID *
- Re-seleable special standalone bags made of PA/PE, high resistance with a thickness of 145 microns. Tested for an aging up to 10 years
- Bags equipped with univocal ID for perfect traceability and beta-irradiated for use in a controlled environment
- Vacuum preset values, accordingly to tissue type. User-customizable for a variety of vacuum levels. Easy interface with built in touchscreen Control Terminal TFT-LCD 7" color display, Res 800X400, 4GB storage, OS Windows Embedded Compact
- High efficient Vacuum Pump up to 10 mBar
- User log in with barcode scansion
- Instrument interface: 2 USB port and 1 RJ45 LAN port
- Run data automatically saved and printed on a sticker. Embedded printer 200 dpi for best printing quality on thermal paper adhesive roll *
- Data Logger card unit's built in slot, for samples, time & temperature monitoring and traceability
- Built in Carbon filter and HEPA filter. Exhaust connection ready*
- Professional device, CE IVD marked
- Remote monitoring and integrable to LIS
- Fully validated and extensive scientific publications list
- Antimicrobial painting

21) Automatic Fixative Filling and Vacuum Sealing System FOR FRESH SPECIMENS

Item Code No.	Department	Section	Item Description
LOT 5-88	Diagnostic Laboratories	Anatomic Pathology	Histopathology processing workflows

- Unique instrumentation, engineered to carry out specimen vacuum bag sealing and automatic formalin dispensing under vacuum, in the same unit
- Large vacuum cavity of 28L entirely made of corrosion-resistant stainless steel AISI 304
- Samples weight detection with built in load-cell IP68
- Large capacity Front drawer for easy access to check 2 tanks in the drawer up to 20L (5.28 Gal US) maximum plus 2 external tanks/containers of the desired capacity
- Application of vacuum via indirect air suction. Electronic vacuum control sensor "EVC" for best gas/vacuum performance in any atmospheric / altitude condition
- Cases identification and tracking: 1D and 2D barcode scanner built in for automatic reading of Cases ID and bags ID*
- Re-sealable special standalone bags made of PA/PE, high resistance with a thickness of 145 microns. Tested for an aging up to 10 years
- Bags equipped with univocal ID for perfect traceability and beta-irradiated for use in a controlled environment
- Vacuum preset values, accordingly to tissue type. User-customizable for a variety of vacuum levels. Easy interface with built in touchscreen Control Terminal TFT-LCD 7" color display, Res 800X400, 4GB OS Windows Embedded Compact
- High efficient Vacuum Pump up to 10 mBar
- Remote alarm connection available*
- User log in with barcode scansion
- Instrument interface: 2 USB port and 1 RJ45 LAN port
- Run data automatically saved and printed on a sticker. Embedded printer 200 dpi for best printing quality on thermal paper adhesive roll*
- Data Logger card unit's built in slot, for samples, time & temperature monitoring and traceability
- Built in Carbon filter and HEPA filter. Exhaust connection ready*
- Professional device, CE IVD marked
- Remote monitoring and integrable to LIS via MileWatch connection
- Fully validated and extensive scientific publications list
- Antimicrobial painting

3.

LOT 5-93 Clinical Microscope

Item Code No.	Department	Section	Item Description
LOT 5-93	Diagnostic Laboratories	Anatomic Pathology	Clinical Microscope
1. General Description			
All-purpose microscopes for general laboratory use, with binocular head, inclined 45^{o}, build in graduated mechanical stage with control knob, with iris diaphragm, and filter holder, eye pieces, objective lens and illumination controls.			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	Magnification	50 to 1000x or wider	
3.1.2.	Eyepieces	Paired 10x wide-field	
3.1.3.	Objective	Magnifications 10x, 40x, 63x, 100x (oil immersed or dry type)	
3.1.4.	Optical System	Universal Infinity System	
3.1.5.	Observation Tube	Binocular	
3.1.6.	Angle of Inclination	45^{o}C	
3.1.7.	Interpupillary Adjustment Distance	> 40 – 70 mm	
3.1.8.	Condenser Type	Universal condenser, N.A. 0.9 or Abbe or Swing out	
3.1.9.	Mechanical Stage	Graduated, with coarse and fine focusing control	
3.1.10.	X-Y motion control	Adjustable	
3.1.11.	X-Y motion vernier	0.1 mm or less	
3.1.12.	Vertical movements of stage	20mm or more	
3.1.13.	Focusing Control	Coarse Focusing - Stage Height Movement	
		Fine Focus Graduation	
3.1.14.	Illumination System	built in base illuminator, LED with	
		Brightness control, mains operated.	
		Filters with colour temperature correction.	
		Mirror Unit for Natural Light Illumination	
4.	Physical characteristics		

Item Code No.	Department	Section	Item Description		
LOT 5-93	Diagnostic Laboratories	Anatomic Pathology	Clinical Microscope		
4.1.	Main unit				
4.1.1.	Approximate dimensions				
5.	Operating environment				
5.1.	Power Requirements	240V, A/c 50 Hz			
5.2.	Humidity				
6.	Accessories				
6.1.	Storage	Lockable Cabinet/Box			
6.2.	AVR				
6.2.1.	Capacity	Over VA of the main Unit			
7.	Consumables				
7.1.	Nil				
8.	Quality standards				
8.1.	Manufacturing standards	IEC 60601-1,ISO 13485, ISO 9001			
	Conformity to standards	CE and FDA marked.			
9.	Delivery point				
9.1.	See schedule				
10.	Pre installation requirements				
	Nil				
11.	Installation and testing				
	Testing at delivery point				
12.	Technical documentations				
12.1.	User manuals	2 Sets			
12.2.	Service Manual	2 Sets			
12.3.	Drawings				
13.	Warranty				
13.1.	Equipment	One year after delivery on all parts			

LOT 5-95 Fluorescent Microscopy, Integrated research microscope with Multiheaded Scopes(X2 Viewers) with camera

Item Code No.	Department	Section	Item Description
LOT 5-95	Diagnostic Laboratories	Routine Lab	Fluorescent Microscopy, Integrated research microscope with Multiheaded Scopes (X2Viewers) with camera

1. General Description

S N	Fluorescent Microscopy, Integrated research microscope with Multiheaded Scopes (X2 Viewers)	Technical Compliance (Yes/No)
1.1.	Upright, Epi-Fluorescence microscope	
1.2.	With long life Transmitted LED illumination having long life of more than 40,000 hours.	
1.3.	Applications: Light and Fluorescence Microscopy of Cells and tissue sections.	
1.4.	Eyepiece: 10X	
1.5.	Nosepiece: 6x revolving nosepiece (capable of accommodating up to 6 objectives) mounted on ball bearing with highly precise click stops and should have slots for upgradation for DIC.	
1.6.	Objective: infinity corrected fluorescence grade objective with PLAN flatness correction 20X, 40X, 63X (oil immersion) and 100X (oil immersion) with correction collar.	
1.7.	Microscope should have LED fluorescence illumination (lifetime – Approx. 25000 or better) suitable for DAPI, GFP/FITC, TRITC, TXR, Cy3 and Cy5.	
1.8.	Microscope should have 5/6 position filter turret along with Fluorescence Bandpass filters for DAPI, GFP/FITC, TRITC/Rhodamine.	
1.9.	Camera: Peltier cooled (-20 below ambient) CCD/CMOS camera having dual mode Mono & Colour with true 5 MP resolution. Exposure time - 1 msec – 600 second or better, Pixel size of approx.3.4µm x3.4µm.	
1.10.	Software for image capture and analysis should be compatible with Windows OS.	
1.11.	Software to control the fluorescence LED illumination and camera to acquire the images with control of all the camera features like exposure, gain, binning, gamma, region of interest. Software	

Item Code No.	Department	Section	Item Description
LOT 5-95	Diagnostic Laboratories	Routine Lab	Fluorescent Microscopy, Integrated research microscope with Multiheaded Scopes (X2Viewers) with camera

	should be able to do Multi- Channel imaging/ Image overlay, Automatic recording of experimental parameters for reference or reloading for subsequent experiments, annotations, image gallery and image comparison, Merge, crop and image arithmetic, Intensity, length and area measurements, Measurement of area intensities through image stacks, Online measurement whilst displaying a live image	
1.12.	Exported formats: JPEG, TIFF, BMP, PNG (image), CSV (raw data)	
1.13.	The software, camera and the microscope should be from the same manufacturer for ideal control of the system.	
1.14.	Minimum Computer specs: i. Processor: 3.2GHz 6M (with i7 processor) and 16 GB RAM, ii. Memory: 1TB HDD iii. 4GB Graphic card iv. 4 USB Ports and an Inbuilt Removable disc drive: DVD RW Drive v. Interface of PC: at least 24-inch TFT Monitor with Keyboard and Mouse Operating System: Window 10 Professional (64 bit) vi. 1KVA online UPS should be provided.	
1.15.	Miscellaneous: - Dust cover, all wires, cords, connector, and standard accessories needed for proper functioning of the microscope	
1.16.	UPS: - At least 01-hour power backup for both Microscope and Computer.	
1.17.	Training and Demonstration: - Training of students / staff/ faculty in equipment maintenance by the certified company engineer and the specifications quoted should be demonstrated on site at the time of installation.	

Item Code No.	Department	Section	Item Description
LOT 5-95	Diagnostic Laboratories	Routine Lab	Fluorescent Microscopy, Integrated research microscope with Multiheaded Scopes (X2Viewers) with camera
1.18.	Installation, commissioning, training etc. free of cost. One additional training session to be done during the two years of warranty period. This training session is in addition to the first training done after installation. The training must demonstrate all the techniques mentioned in the specification or additional if applicable.		
1.19.	Warranty: At least two (2) years		

LOT 5-97 Whole Slide scanner with fluorescent, brightfield, darkfield and polarized microscopy, with capacity for multiplex and automated analysis

Item Code No.	Department	Section	Item Description
LOT 5-97	Diagnostic Laboratories	Anatomic Pathology	Whole Slide scanner with fluorescent, brightfield, darkfield and polarized microscopy, with capacity for multiplex and automated analysis

1. General Description

Whole Slide scanner with fluorescent, brightfield, darkfield and polarized microscopy

TECHNICAL SPECIFICATION OF SLIDE SCANNER

1.1. General Specification
Fully automated high performance whole sidewalk away scanner for histopathology glass slides.

1.2. Slide Capacity
Sample throughout with loading capacity of minimum 350 or more glass slides.

1.3. Slide Dimension
Should handle glass slides having dimensions of 25x75 mm with a thickness of0.9-1.39 mm including the coverslip.

1.4. Slide loader
Should have an inbuilt automatic slide loader.

Item Code No.	Department	Section	Item Description
LOT 5-97	Diagnostic Laboratories	Anatomic Pathology	Whole Slide scanner with fluorescent, brightfield, darkfield and polarized microscopy, with capacity for multiplex and automated analysis

1.5. Random Access
Scanner should have capability to load slides while some of the sliders are being scanned without interrupting the ongoing scanning run-Random Access.

1.6. Slide throughput
Should be a high-speed scanner with minimum throughput of 50 slides per hourfor 15x15mm tissue sample at 20X objective and precise scanning at 40x objective
Software should be provided
Should have a camera with compatible LED screen, 150 inch.

1.7. Stat Access
Ability to prioritize slide scan to support Stat workflow.

1.8. Barcode reading
Should read 1D and 2D barcode labels

1.9. Z-stacking
Should allow scanning of multiple planes.

1.10. Image management
Image management software should facilitate image acquisition, annotations, FOV capture, cell counts, customized reporting and synchronized viewing.

1.11. Archival and Retrieval
Should provide with a strong database support for image acquisition, archival and retrieval and slide sharing for Telepathology.

1.12. Light Source
LED light source should be provided with due consideration to its longevity, less power consumption with preference to “automatic switch on” while scanning.

1.13. Digital Slide Storage Format
Slide storage format should be BIF, TIFF or JPEG 2000.

1.14. Footprint
Should be compact with minimal additional parts so as to reduce the occurrence of breakdowns of different units.

1.15. Case Management

Item Code No.	Department	Section	Item Description
LOT 5-97	Diagnostic Laboratories	Anatomic Pathology	Whole Slide scanner with fluorescent, brightfield, darkfield and polarized microscopy, with capacity for multiplex and automated analysis

Should allow complete case management right from patient history acquisition to customized reporting of the case.

1.16. Image Analysis Algorithm
- Should have tune able algorithms for multiple parameters.
- Should have US FDA approved Image Analysis algorithms for HER2 (4B5),PR (1E2), ER (SP1), p53 (DO-7) and Ki-67 (30-9).

1.17. Training and Service Support
Well trained service and support team should be provided. Company should bewell established and have a track record of expertise in the field.

1.18. User Authorization
Password protected, role-based security with limited access in accordance with the user hierarchy.

1.19. Remote case management
Image management (anytime, anywhere thin client image viewing) for case accessing through reporting.

1.20. Software license
Updated as and when new additions come without any recurrent cost.
Should have a provision for database storage

LOT 5-99 Centrifuge

Item Code No.	Department	Section	Item Description
LOT 5-99	Diagnostic Laboratories	Cytology	Centrifuge
1. General Description			
For laboratory use. Tabletop model			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		

Item Code No.	Department	Section	Item Description
LOT 5-99	Diagnostic Laboratories	Cytology	Centrifuge
3.1.1.	The unit should be a model or type on current production		
3.1.2.	Maximum speed	Up to 6000 rpm	
3.1.3.	Maximum RCF	4600G	
3.1.4.	Timer	Provided	
3.1.5.	Brake system	Provided	
3.1.6.	Safety System	Door open	
3.1.7.	Rotor Type	Swing out and fixed angle rotor	
3.1.8.	Tube adapter	4/5 ml, 15ml X 12 pcs	
3.2.	Rotor	2 sets: fixed angle and swing out	
3.3.	Tube adapter	2 Sets for fixed angle and swing out	
3.4.	Rotor locking wrench	2 pieces	
4.	Physical characteristics		
4.1.	Main unit		
4.2.	Dimensions	Tabletop model	
5.	Operating environment		
5.1.	Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug, 3m long cord BS type with PE	
5.2.	Ambient temperature	10^{o} C to 40^{o} C	
5.3.			
5.4.	Relative humidity	20% to 90%	
6.	Consumable		
6.1.	Test tubes	Start-up Kits must be provided.	
7.	Quality standards		
7.1.	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485, and UL 3101-1	
7.2.	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked	
8.	Local back up service		
8.1.	Available	Should be available locally	

Item Code No.	Department	Section	Item Description
LOT 5-99	Diagnostic Laboratories	Cytology	Centrifuge
8.2.	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables, and qualified and skilled technical staff	
9.	Delivery point		
9.1.	See Schedule	For inspection and testing	
9.2.	Nil		
10.	Pre installation requirements		
	Nil		
11.	Installation and testing		
	Complete installation and setup of the machine as per manufacturer's instructions		
12.	Training		
12.1.	User Training	On site user training on operation and daily upkeep	
12.2.	Maintenance training	Onsite maintenance training on preventive maintenance	
13.	Technical documentations		
13.1.	User manuals	2 Sets	
13.2.	Service Manual	1 Set	
13.3.	Drawings	Nil	
14.	Commissioning		
14.1.	Testing and commissioning of the machine to the satisfaction of the user.		
15.	Warranty		
15.1.	Equipment	Minimum of one year after commissioning on all parts.	
15.2.	Equipment System	Nil	
16.	Accessories		

LOT 5-100 Refrigerator (2 to 8 deg)

Item Code No.	Department	Section	Item Description
LOT-5-100	Diagnostic Laboratory	Cytology	Refrigerator
1. General Description			
Refrigerator			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	Material	Insulated galvanized steel	
3.1.2.	Type	Compressor, electrical	
3.1.3.	Door	Double door, glass type	
3.1.4.	Temperatures range	2 to 8^{o}C stable ± 0.5^{o}C	
3.1.5.	Ambient temperature	10 ^{o} C to 35^{o}C	
3.1.6.	Blood storage capacity	more than 300Litres	
3.1.7.	Shelves	Provided, adjustable and extractable with dividers	
3.1.8.	Temperature monitor	Digital display with temperature record history	
3.1.9.	Control	Electronic, Microprocessor based	
3.1.10.	Refrigerant	CFC free	
3.1.11.	Alarm	Provided, audible and visible	
3.1.12.	Power	240V, 50 Hz, a.c	
4.	Quality standards		
4.1.	Manufacturing standards	ISO 9001, ISO 13485, ISO 14001	
4.2.	Conformity to standards	CE and FDA marked.	
5.	Delivery point		
5.1.	See Schedule	For inspection and testing	
5.2.	Nil		
6.	Warranty		

Item Code No.	Department	Section	Item Description
LOT-5-100	Diagnostic Laboratory	Cytology	Refrigerator
6.1.	Equipment	Minimum of one year after commissioning on all parts.	
6.2.	Equipment System	Nil	
7.	Accessories		
7.1.	Automatic Voltage Regulator (AVR)		
7.1.1.	Capacity	Over VA of the main Unit	
7.1.2.	Input	Ac 240V, 50Hz, Single phase ± 15%	
7.1.3.	Output	Ac 240V, 50Hz, Single Phase ± 2.5 %	

LOT 5-101 Staining workflows

Item Code No.	Department	Section	Item Description
LOT 5-101	Laboratory	Histopathology	Staining workflows
1. General Description			
2. Composition			
Main unit			
3. Description of the medical supply unit design type			
Specifications for Automatic Slide Stainer 3.1 The Instrument should be compact, equipped with robotic arm for X-Y-Z directional movement, space saving with continuous washing of slides with fresh water. 3.2 High slide throughput up to 400 slides/hour depending on the program selected. 3.3 The machine should be programmable, so that multiple racks (at least 11 slide racks together if necessary, each rack accommodating 30-40 slides) can be run simultaneously at different stages of staining. The racks should be made of corrosion resistant hard plastic and two sets of racks should be provided with machine at no extra cost. 3.4 Should be programmable for routine H & E & other special stains, in multiple batches to continuous loading, with parallel processing. 3.5 Minimum 25 reagent stations of at least 400ml capacity including wash stations. 3.6 Programmable for up to 15 programs or more, of up to at least 25 steps with incubation time setting from 0 sec to 99 min or more.			

Item Code No.	Department	Section	Item Description
LOT 5-101	Laboratory	Histopathology	Staining workflows

3.7	Continuous loading and unloading of slides via Rack entry and exit of machine. [For parallel processing]
3.8	Gentle vibration to slide rack during lifting to reduce carryover contamination
3.9	Provision of interrupting an automatic process for reloading or removing cassettes before the end of a run must be there.
3.10	Easy-to-clean and resistant surfaces made out of polyester epoxy resin or stainless steel.
3.11	LCD Screen display of time, date and cycles with touch controls and menu.
3.12	Audible remote alarm to signal possible problems, errors and reagent change etc.
3.13	A fume hood completely covering the slide plates to prevent hazardous fumes from entering the lab area and an activated charcoal filter to minimize solvent vapors should be provided.
3.14	Can be connected with any make automatic cover-slipper.
3.15	Suitable UPS with maintenance free batteries for minimum 1-hour back-up should be supplied with the system at no extra cost.
3.16	A portable tool set should be supplied with each machine for minor technical need at no extra cost.
3.17	The unit shall be capable of being stored continuously in ambient temperature of 0 - 50deg C and relative humidity of 15-90%.
3.18	Power input to be 220-240VAC, 50Hz fitted with BS Plug. Compatible external adaptor and battery unit should be supplied with the instrument with attached hospital BS plugs.
3.19	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.
3.20	Should be compliant with IEC 61010-1: covering safety requirements for electrical equipment for measurement control and laboratory use.
3.21	Should be FDA or European CE approved product.
3.22	Comprehensive training for lab staff and support services till familiarity with the system.
3.23	Certificate of calibration and inspection from factory.
3.24	Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of original catalogue.
3.25	User/Technical/Maintenance manuals to be supplied.
3.26	Warranty 2 years.
3.27	CMC 5 years.
3.28	this section requires additions
3.29	1. tissue processing equipment
3.30	cryostat and frozen section
3.31	printers on blockers
3.32	microtome
3.33	embedding ststions
3.34	filling system of tissue blocks and slides

LOT 5-105 Ultra-low Freezer (-80^{0}C) and/or liquid nitrogen tank

Item Code No.	Department	Section	Item Description
LOT 5-105	Diagnostic Laboratories	Biorepository	Ultra-low Freezer (-80^{0}C) and/or liquid nitrogen tank

1. General Description

Ultra-low deep freezer (-80^{0}C)

1.1. Capacity: Upright Vertical -80°C deep freezer with 550 litres or above capacity with at least three adjustable compartments of stainless-steel shelves.
1.2. Interior: 304L grade SS; Exterior: powder coated finish on heavy duty steel gauge.
1.3. The Operating temperature should be programmable up to -80°C with 1°C increments
1.4. Should work even at ambient temperature of up to 350C.
1.5. Compressors: It should have two fully functional compressors (operational at 220-240V, 50 Hz) with 10-year warranty. In case of failure of one compressor, the other compressor should continue to the cooling function.
1.6. Insulation panel should have warranty of 5 years.
1.7. Refrigerant: CFC-FREE, HCFC-FREE non-inflammable or eco-friendly natural hydrocarbon refrigerants, Refrigeration system: hermetically sealed cascade refrigeration system.
1.8. Should have provision for CO2/ LN2 backup systems.
1.9. Should have microprocessor based programmable control panel with LED/LCD digital display.
1.10. Should have battery back-up and audible and visual alarms for temperature, power failure, system failure, battery low etc.
1.11. Noise output should be ≤56 dB.
1.12. Should have Heavy duty lockable castors and lockable outer doors and lids.
1.13. It should be supplied with 5KVA servo voltage stabilizer with HI-LO Cut off on delay and output of 230V+10V.
1.14. Minimum 05 performance certificate of same or equivalent model (-800C) installed only in Government research & educational or autonomous organizations under government within past 5 years should be submitted.

Note:- All technical claims of the Bidder should be supported by product catalogue, public website of the manufacturer. The instruments fabricated to the specifications will not be considered. The equipment offered should be a standard model of the company with proven manufacturing quality control and performance track record. Tailor-made equipment models as per specifications will not be considered.

LOT 5-105 Vapour Nitrogen tanks

Item Code No.	Department	Section	Item Description
LOT 5-105	Diagnostic Laboratories	Biorepository	Liquid Nitogen tanks

1. General Description

Item Code No.	Department	Section	Item Description
LOT 5-105	Diagnostic Laboratories	Biorepository	Liquid Nitogen tanks

1.1. Type: vertical
1.2. Number: 1
1.3. Capacity: 6000 liters
1.4. Working pressure: 6 bars
1.5. Static evaporation (% per day) should be less than 1%
1.6. Suitable pressure indicator to monitor the liquid pressure (analogue or digital gauge)
1.7. With built in Self pressurizing system (vaporizer) with necessary valves
1.8. The vessel should include all the accessories like check valves, drain valve, thermal relief valve etc.
1.9. Should come with standard safety and operational accessories
1.10. MOC: Inner vessel SS304 & outer vessel Carbon steel
1.11. Document to be submitted with technical bid:
   a. Only reputed manufacturers fulfilling the CCOE licensing/PESO or equivalent safety standards alone entitled to participate in the tender. Necessary documentary evidence to be supplied for technical acceptance of the offer.
   b. List of similar such orders executed in the past five years in the region along with contact details.
1.12. In case of break down during the contract period of one or both the vessels, replacement have to be provided and temporary storage facility for LN2 will also be provided during the break down period

Additional (but mandatory) requirement

The vendor should arrange for the CCOE license for the usage of equipment at the site. The scope of supply includes the provision of necessary information-for the. PESO installation requirements, like tank layout, Fencing, gates: fire-fighting equipment etc. However, USER will carry out the layout preparation, fencing etc. in-accordance with statutory requirements. The vendor will apply and obtain the CCOE licenses on the client's behalf. The client will provide the required documentations for availing the above licenses. Statutory payment towards obtaining license would be paid by the institute.

2. Scope and specification for Liquid Nitrogen supply.

2.1. Rate contract for the regular supply of liquid Nitrogen to be filled in the two 6000 Liter tanks with a purity of not less than 99.95%
2.2. Delivery to be done batch wise of quantity 6000 liters at EAKI site as and when required. Request will be made in advance through telephone or email. and the order should be supplied within 5 days.
2.3. Filling arrangement with required tools and related work will be responsibility of supplier
2.4. Payment towards the quantity received will be done on the basis of weight difference of tanker before and after filling. Measurement of the weight shall be done at any nearby Weigh Bridge before entering the site and after filling. The documents are to be verified by EAKI representative at the site. Net weight will be converted into liters

Item Code No.	Department	Section	Item Description
LOT 5-105	Diagnostic Laboratories	Biorepository	Liquid Nitogen tanks

of liquid received considering the density as 1.24 kg/litre. This should match with the level rise in the tank filled. Additional loss incurred will be deducted from the total quantity claimed. Payment for each filling will be done against the bill submitted.

2.5. The Liquid Nitrogen transfer should be done during working hours in presence of EAKI staff. No holding or waiting charges will be applicable in billing.

2.6. Basic price should be quoted in per litres basis and that should include transport charges.

LOT 5-105 Liquid Nitrogen storage cryoracks and accessories

Item Code No.	Department	Section	Item Description
LOT 5-105	Diagnostic Laboratories	Biorepository	Liquid Nitrogen storage cryoracks and accessories

1. General Description

Liquid Nitrogen storage container with accessories

Technical Specifications:

1.1. LN2 capacity of minimum 110 liters
1.2. Tank mouth should be wide with a diameter of minimum 8.5”
1.3. The container should be designed for low heat leak and high strength.
1.4. capacity of minimum 3600 vials
1.5. Empty container should be light weight with approximate 65 kg
1.6. 70 x 100 cm (Diameter x height)
1.7. CE certification (European standard)
1.8. Vial retriever should be supplied along with the system
1.9. Equipped with low level alarm and level monitor
1.10. Trolley/roller base
1.11. Temperature module with Remote alarm system (Desirable).

Accessories

1.12. Cyroboxes; the number should be according to the maximum container capacity for storage of 2 ml vials
1.13. Crygloves (2 pair) suitable for LN2 work
1.14. Cryoracks; number should be according to the maximum container capacity for storage of 2ml vials
1.15. Face protection mask Manual Dip measurer Desirable
1.16. N2 gas cylinder with a minimum 45 litre capacity (one)
1.17. Gas regulator (one)
1.18. Trolley for N2 cylinder (one)

Annexure – 02

Item Code No.	Department	Section	Item Description
LOT 5-105	Diagnostic Laboratories	Biorepository	Liquid Nitrogen storage cryoracks and accessories

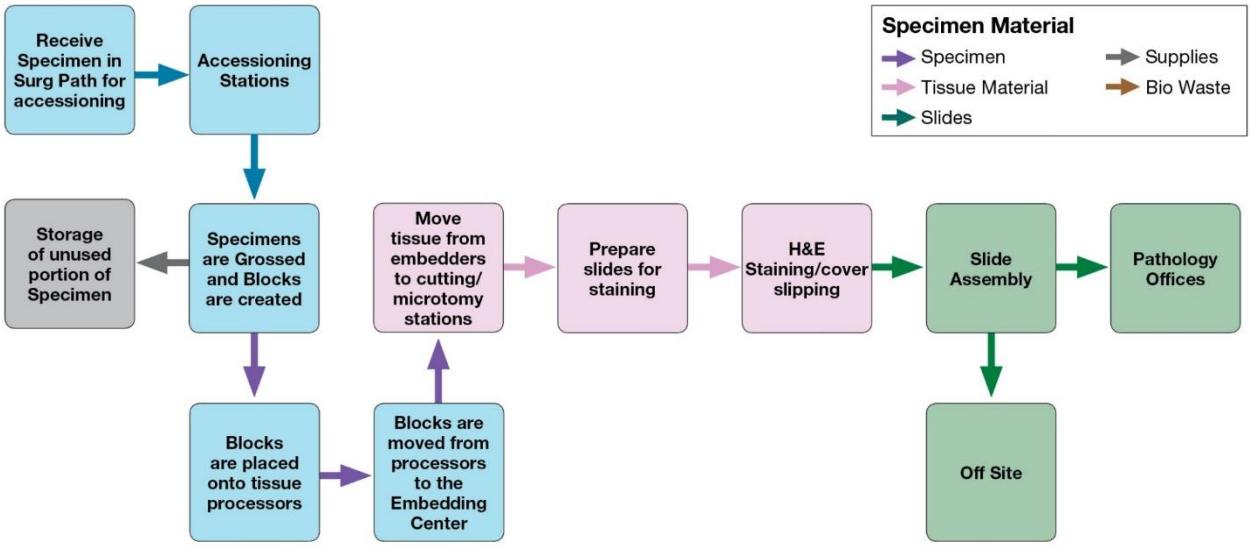
Liquid Nitrogen supply container with installation accessories

QUANTITY: 01

2. **Technical Specifications:**
   - 2.1. LN2 Supply Tank Type Stainless Steel Low Pressure (22 psi)
   - 2.2. LN2 Capacity 230.0 Liters
   - 2.3. Static Evaporation Rate 1%-2% per day
   - 2.4. Neck opening: Closed system – Hose withdrawal
   - 2.5. Caster Base/trolley for easy transport
   - 2.6. Pressure building capacity 0.1psi to 25psi.
   - 2.7. The liquid cylinder/tank should be constructed with an all-stainless steel internal support system designed for low heat leak and high strength.
   - 2.8. Easy handling and space saving compact design
   - 2.9. The system should have highly efficient insulation system minimizes the rate of pressure rise during periods of non-use. This allows for a reasonable period of nonuse without any venting of product from the pressure relief valve.

3. Provision of Storage for slides and formalin fixed paraffin embedded tissue blocks (1000 capacity)

HISTOPATHOLOGY WORKFLOW, PROPOSED PLAN



NOTE:

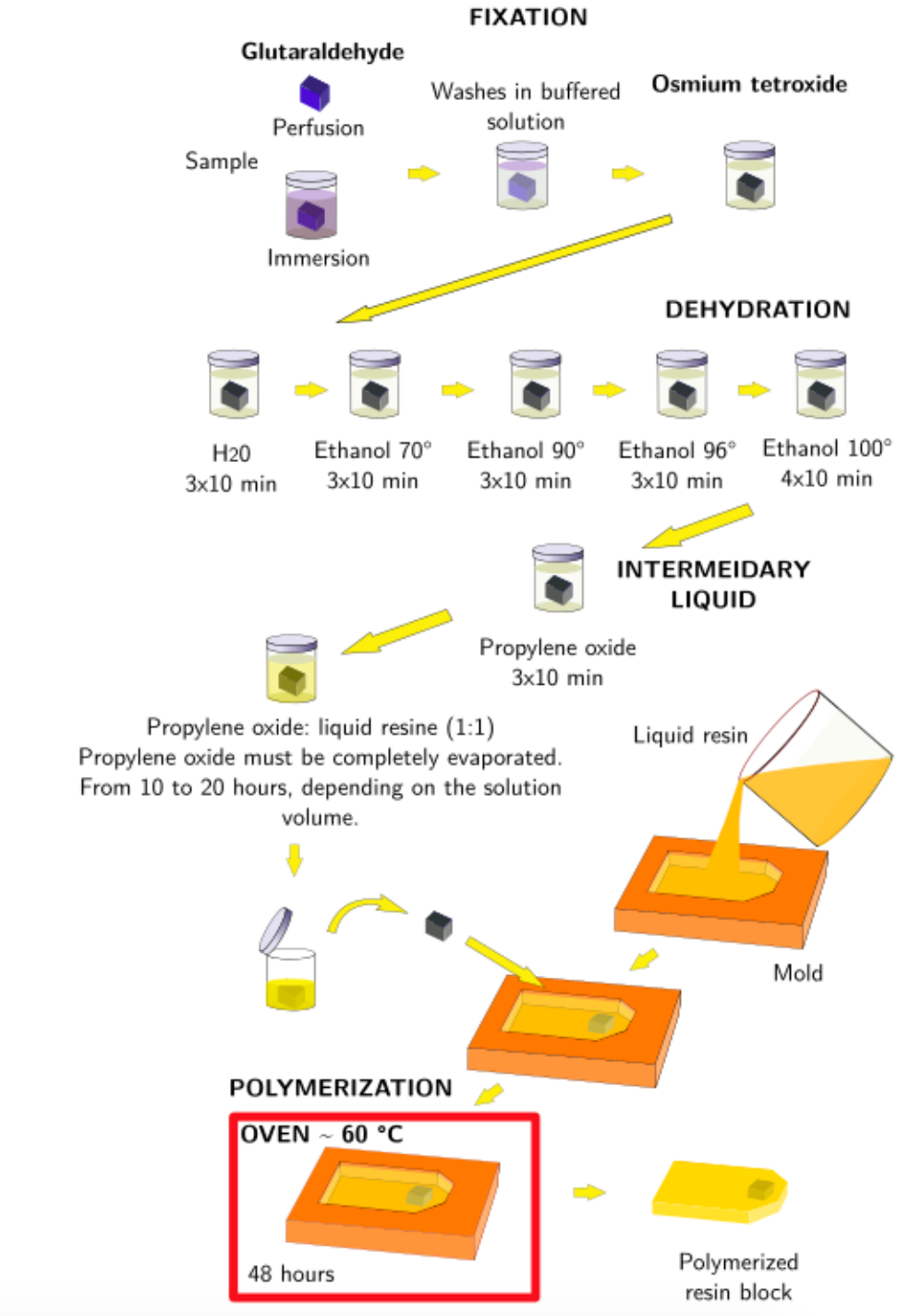
1. H/E staining and cover slipping may include special stains, immunohistochemistry.
2. Slide scanning to be performed within slide assembly sites.

SAMPLE PREPARATION (PRE-ANALYTICS) FOR ELECTRON MICROSCOPY

1. Fixation (Performed at room temperature).
    a. Initial Fixation using Glutaraldehyde.
    b. Subsequent fixation in Osmium Tetrachloride.
2. Dehydration (Replacement of aqueous fixatives by solvents, all done at room temperature)
    a. Acetone/Ethanol
    b. Propylene Oxide
    c. Embedding in resin (Epon 812 epoxy resin media), done at 60 degrees celcius
3. Microtomy
    a. Glass Ultramicrotome, 0.5-1-micron section thickness.
    b. Diamond Ultramicrotome, <60 nanometer section thickness.
4. Grids
    a. Made of Nickel or Copper
    b. Forceps required to handle the
    c. Multiple (minimum, 100), with grid area less than 1% to 20% of 1 μm^2
5. Storage of Grids, with specimens
    a. Petridishes needed (for EM Spec), accessories – Sodium Hydroxide.

NB: These should be supplied by the same supplier, of the Electron Microscopy System.

Workflow, ELECTRON MICROSCOPY



Drawn by:

Name: ……. Signature ……Date: ……

Reviewed by:

Name……... Signature ……Date ……...

Name……... Signature ……Date ……...

Name……... Signature ……Date ……...

Confirmed by:

1. Name: Signature……Date ……
2. Name: ……. Signature……. Date….....
3. Name……Signature…….Date……