DOUBLE CHANNEL 3 PART FULLY AUTOMATED HEMATOLOGY ANALYZER

TECHNICAL SPECIFICATIONS	
Throughput	It must perform minimum 60 tests/hour
Working Principle	WBC, RBC and PLT-Electrical resistance detection
	HGB- Colorimetric
	HCT-Cumulative pulse height detection
Sample	It must measure Venous, Capillary, Pre-diluted
Measurement principle	It must be Double Channel testing and independent hemoglobin testing system with volumetric base
Applicable analytes	It must be minimum 20 parameters (WBC, LYM%, MID%, GRAN%, LYM#, MID#, GRAN#, RBC, HGB, HCT, MCV, MCH, MCHC, RDW-SD, RDW-CV, PLT, MPV, PDW, PCT, P-LCR), and 3 histograms for WBC, RBC and PLT with 3 part differential count
Sample volume	It must be not more than 9.8 µl in venous & Capillary blood mode
	It must be not more 20 µl in pre-diluted mode
Aperture size	It must Not more than or less than for WBC: 100 µm
	It must Not more than or less than RBC/PLT: 70 µm
Venous & Capillary mode	It must be WBC/HGB: 1:300
	It must be RBC/PLT: 1:44600
Pre-dilute mode	It must be WBC/HGB: 1:355
	It must be RBC/PLT: 1:44500
Quality Control	It must run 4 QC in a day
	3 month QC data can be re-viewed
	It must show Mean, SD & CV calculations
User Interface	It must be LCD color touch screen
Interface	It must have 1 Printer port
	It must have 2 RS 232 serial port
	It must have 2 USB ports
	It must have 2 PS/2 ports
Printer	It must have Inbuilt thermal printer
	It must have Paper width: 57.5 mm
	It must have Print width: 48 mm
Operating conditions	It must have operational in Temperature: 18°C ~ 30°C
	It must have operational in Humidity: 10% ~ 90% RH
	It must have operational in Atmospheric pressure: 86 kPa ~ 106 kPa
Must Special Analyte	It must have RDW-SD, RDW-CV and P-LCR
Discriminator	It must be Floating Technology
Certifications Required	It should have CE & ISO 13485 certified.

SEMI AUTOMATED BIOCHEMISTRY ANALYZER

TECHNICAL SPECIFICATIONS

Assay Types / Modes	It mut have atleast 8 modes (Absorbance, End Point, Fixed Time, Rate, Sample Blank, Multi Standard , Two point Non Linear, and Sample Blank Non Linear)
Programmable Tests	Atleast 100 test can be programmable
Sample Type	It can process Serum / Urine / Plasma / Body Fluids / Haemolysate
Measurement Methods	It must be both Monochromatic and Bichromatic
Photodiodes	It must have One Silicon Photodiode
Wavelengths(Filter wheel)	It must have atleast 7 Filters (340, 405, 505, 546, 578, 620, 670 nm) and 1 Free position
Range of Absorbance	It must have absorbance range of 0 - 3.0 Abs
Resolution	It must be 0.0001
Delay / Incubation Time	It must be between 3-999 seconds
Read Time	It must be beween 3-999 seconds for End Point, 30-999 seconds for Kinetic & Fixed Time
Types of Cuvettes	It mjst have a Quartz Flowcell
	It must have 6mm Polystyrene Cuvette
Flowcell Volume	It must not be more than or less than 32 µl
Display	High Resolution 240 x 128 dots graphical LCD with LED backlight
Keyboard	It must be operated by QWERTY Keypad
Printer	It must be In built 384 dots Thermal Printer
PC Communication	It must have 9 pin D type Serial Connector RS232 Port
PC Software	External software must be provided
Memory	Memory must be FLASH type
Storage	i) 25,000 test data storage
	ii) 300 Daily QC
	iii) 3 Months QC Data
Result Reports	Collated by ID, Date and Test
Quality Controls	It must have Daily and Monthly for 3 levels with L J Plot
Aspiration Volume	It must be between 200-1500 µl
Air Purge	It must have Air Purge Variable (To reduce Carry over & Cross contamination)
Cross Contamination	It must be <1%
Flow Cell Temperature	It must be 25^0C, 30^0C, 37^0C; Peltier control
Incubator	It must have atleast 4 Inbuilt incubator Positions (37^0C)
Light Source	It must be having 6V, 10W Quartz Halogen Lamp (Life Span 2000 Hours)
Operating Voltage	It must operrate on 230VAC ±10%, 50Hz, 45W max
Operating Temperature	It must be between 10 to 35 ^{0}C
Humidity	</=80% RH
Weight	11 Kgs

Language Supported	English
Recal	It is possible to revise the Delay and Read Time after the test has been run for hyperactive samples thus ensuring no wastage by redilution
Cerification	It must have CE & ISO 13485 certified
Real Time Graph Deisplay	It must have real time graph display to see the reactions

FULLY AUTOMATED RANDOM ACCESS BIOCHEMISTRY ANALYZER

TECHNICAL SPECIFICATIONS

Test speed	Its can perform Upto 120 test/hr on Double Reagent & 125 test/hr on Single Reagent
Analysis Methods Assay Modes	It must have End-point, Fixed time, Kinetic Rate-A,Kinetic Rate-B,Colorimetry, Turbidimetry,Single & double reagent,Multi Standard, Mono & Bi-Chromatic
Sample Tray	It Must have 22 sample positions; including standards and QC. Sample positions are bar code enabled.Primary tubes & sample cups can be used
Reagent Tray	It must have 22 reagent positions, 20 ml reagent bottle with on-board refrigerated function. Reagents positions are bar code enabled . Reagent tray must be detachable.Refrigeration by Water Cooled Peltier (8-12 degree C)
Emergency sample	It must have STAT facility
Sample volume	Sample volume must be 2-50 µl, 0.1 µl step
Sample Dilution	It can Dilute on ratio of 2 to 40 times
Reagent volume	Reagent volume should be 0 µl～350 µl, 1µl step
Probe & Stirrer	It must be Single teflon coated stirrer,vertical & horizontal obstruction detection facility to prevent probe crash. Internal & external proe wash. Carryover of probe must b <3%. Hydrophobic probes must be required.
Cleaning system	It must have7-step on board washing must be there
Reaction Tray	It mus have maxoimum 60 cuvettes (Dismountable) which must be easily repcleaceable & resuable with 6 mm optical path. Hot water wash of cuvettes & carry over less than <1% must be there. Cuvettes material must ensure high transmittance with long life of atleast 12 months. It must have continuos cuvette blank checking & of blank exceeds the limit, cuvttes must be skipped.
Reaction Temperature	37 ± 0.1˚C, Temperature fluctuation is ± 0.2˚C
Reaction liquid volume	180 ~ 550µl
Reaction Time	30 to 600 seconds
Mixing System	Stirrer
Water Consumption	maxium 4 Ltr/hour
Optical system	Must be Halogen Tungsten with fibre optics. Detector must be photodiode
QC	Real time QC based on Multi rule method mean,SD,%CV
Wavelength	9 wavelength : 340nm, 405nm, 450nm, 510nm, 546nm, 578nm, 620nm, 670nm, 700nm
Absorbance linearity	0.0～3.0 Abs
Resolution	0.0001
Power	110/240 VAC, 50/60 Hz, </= 250 W
Software	Windows XP,Windows 7, Window 8 or Window 10. It must show online curves for all type of chemistries, real time monitoring for running status of Sample Tray, Reagent Tray & Reaction cuvettes.
Working environment	Temperature : 10˚C～ 35˚C
	Humidity : ≤90% RH
Certifications	It must be CE & ISO 13485 certified.

2 CHANNEL COAGULATION ANALYZER

TECHNICAL SPECIFICATIONS	
Measuring Principle	It must be based on Advanced scattered light
Reagent Type	It must be Open
Integrated System	It must equipped with Electronic Pipette to reduce manual errors.
Reagent Consumption	Reagent volume must ve less than 50 µL
Tests Performed	It must performPT, APTT, TT Fibrinogen and single factor tests
Test wavelength	470 nm is required
Testing channels	It must have 2 channels system only
Sample pre-warming position	Sampe porsition must be atleast 16
Reagent pre-warming position	Reagent position must be atleast 4
Dispense precision	CV must be < 2 %
Temperature control precision	37±0.3°C
Repeatability	Activated partial thromboplastin time tolerance ± 2 s.
Stability	Activated partial thromboplastin time tolerance within one hour ± 2s
Channel consistency	Each channel activated partial thromboplastin time tolerance ± 2s.
Linearity error	Fibrinogen concentration of the linear correlation coefficient: $r^2 > 0.98$
Memory	It must have 5000 test results (500 Patient Id , 10 tests for each ID)
Power supply	230 VAC ± 10%, 50Hz
Communication interface	It must have RS232 interface, PC connecting
Report	Date and ID wise reports recalled.
Humidity	≤90%
Certification	It must be CE Certified & ISO 13485.

Semi Automated ELISA Plate Reader

Technical Specifications	
Detection Principle	It should based on Vertical Photometry
Assay modes	It must be having Quantitative,Qualitative, Absorbance,SemiQuantitative modes
Microplate types	It must take reading of 96 well plate
Measuring system	It must be 8-Channel fibre optics optical system
Reading speed	Single wavelength -8 sec for 96 well
	Dual wavelength -18 sec for 96 well
Light source	It shoulbe 12V 20 W halogen
Wavelength	405nm ,450 nm,494 nm,630 nm
	(with 3 optional filters Positions) .
Display	It must be 320x240 pixel STN-Blue monochrome LCD with LED backlight .
Keypad	It must be operated by Touch screen
Reading range	It must be 0.000 ~ 4.000 A
Repeatability	It must be CV+/- 0.3%
Stability	It must be, for 1 hour, drift ±0.003A
Linearity	It must be 0.000 ~3.000A for 492nm
Shaking	It must have 5 options (weak to strong), vibration time is adjustable from 0s to 240s.
External Software	External PC Software must be provided
	SemiQuantitative Assay an Reverse Cut off function; 10 Calibration Curve per parameter; parallel Shift; QC with L J Graph; Reference Values based on Male female and Infant; Reports with Patien Demographics
Printer	It must compatible with External USB printer
Operating environment	5~ 40 ^{0}c
QC	It must have extensive QC programming with LJ plot
Calculation Mode	It must calculate Multistandard, Linear, Non Linear along with calibration type Conc Log, Log Log,
	Multipoint Linear,O.D. Log
Result output	Multiform result output including patient comprehensive report
Communication	Ability to communicate with PC for data management thru RS232 port
Software Features	Reverse Cut off Function
	Parallel Shift
	Copy Test and Export Data functions in excel format
Certification	It must be CE Certified & ISO 13485.