

Dated, the 06 May, 2022

CORRIGENDUM

The Competent Authority has extended the deadline for submission of bids in r/o **RFP for Procurement of Equipment for NFL, Raxaul (Group-II)** issued vide GeM Bid No. [GEM/2022/B/2114798](#) dated 19.04.2022, through GeM, **upto 17th May, 2022**. Some changes in the Specifications of Equipment the tender documents have also been incorporated as per details given herein :-

1. DIGITAL THERMOHYGROMETER	
Application: The thermo hygrometer measures both humidity and temperature of the laboratory environment. It is useful instrument for maintaining optimal temperature and humidity inside the lab	
Specifications	Requirements
Temperature	-20 °C to 60 °C Readability 0.1 °C
Temperature accuracy	±1.0°C or better
Resolution	0.1°C
Temperature Update Rate	500 ms
Data storage capacity	99 points
R.H. Range	5 % to 95 % R.H. ± 2.5 % - % RH readability
Display	Backlit dual display of humidity and temperature
Operational requirements	<ul style="list-style-type: none"> • Digital display: display with soft touch screen operation along with accessibility to date and time etc. • To have inner adjustable draft shield • Glass drafts shield with flexible configuration for left /right hand operation • Compatible to LIMS and printer.
Operating manuals, service manuals, other manuals	Should provide:- User, technical and maintenance manuals in English language List of procedures required for local calibration and routine maintenance service and operation manuals to be provided Advanced maintenance tasks documentation, if any.
Recommendations or Warnings	Any warning signs would be adequately displayed
Supplier/ Manufacturer	<ul style="list-style-type: none"> • Should be FDA/CE/BIS approved product. • Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements (or equivalent IS/ International Standard). • All suppliers must submit a copy of catalogue showing technical specifications.
Warranty	Minimum three years comprehensive onsite warranty with one Preventive Maintenance from the date of installation and commissioning every year. Warranty to be provided by OEM/Manufacturer.

2. WATER PURIFICATION SYSTEM

Application: Ultrapure water purification system is required for purification of water and making it free of contaminants that interfere with microbiological analysis. An ultrapure water system is equipped with ultra-filters to remove endotoxins, DNase and RNase left over from bacteria destroyed by UV, resulting in extremely low total organic carbon (TOC) and having a resistance of up to 18.2 MΩ/cm.

Specifications	Requirements
General	Compact, Wall mountable/benchttop system for microbiology / molecular biology/LC-MS/MS grade water applications. Should deliver ultra-pure product water by point of use dispenser with flexible dispenser, volumetric dispensing and auto shut off facility.
Quality of water	Should deliver Type I/Ultra- pure as per International specifications as follows: Electrical Resistivity Min. 18.2 MΩ/cm @ 25°C Conductivity 0.055 μS/cm compensated to 25°C TOC level (system with UV lamp) <5ppb Flow rate > 1 lit / min Bacteria <1 CFU/100 ml Particulates(size>0.22μm) <1/mL Sodium (ppb)< 1 Chloride (ppb) < 1 Total Silica (ppb) < 3 Pyrogens <0.001 Eu/ml RNases free, <1pg/ml DNases free, <5 pg/ml
Storage	System should come with an inbuilt storage system of 5-8 L to store consistently high-quality pure water for prolonged period and prevent Contamination by ambient air.
Feed water	Should have separate feed water (Potable tap water) specific purification cartridge and application specific polishing cartridge
Control display	<ul style="list-style-type: none"> • Should have calibrated meters for continuous monitoring and display of water quality parameters: Product water resistivity / conductivity both compensated and non-compensated mode, product water temperature, • Alarms for product water resistivity greater or below set point • Should have display for maintenance: sanitization/exchange purification cartridges/activation of fast flush/ depressurization / air purge etc.
Accessories	Multifunction Stand Dispenser gun Feed water pressure regulator
Consumable	Must Quote separately for consumables (cartridges, filters etc.) for one year for trouble free working.
Validation	For validation vendor should having its own capability with their own company trained service engineer to perform validation. No third part validation will be entertained. One validation at the time of installation should be done by company personnel.

Operating manuals, service manuals, other manuals	Should provide:- User, technical and maintenance manuals in English language List of procedures required for local calibration and routine maintenance service and operation manuals to be provided Advanced maintenance tasks documentation, if any.
Supplier/ Manufacturer	<ul style="list-style-type: none"> • Should be FDA/CE/BIS approved product. • Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements (or equivalent IS/ International Standard) • All suppliers must submit a copy of catalogue showing technical specifications.
Warranty	Minimum three years comprehensive onsite warranty with one Preventive Maintenance from the date of installation and commissioning every year on equipment including all consumables. Warranty to be provided by OEM/Manufacturer.
IQ/PQ/OQ	On site IQ, OQ of instrument along with document to be provided & supplier to assist till satisfactory PQ of instrument

3. FLASH POINT APPARATUS (PENSKY-MARTENS)

Application: Used to measure flash point of oils and fats by using Pensky-Martens Closed Cup method for determining the quality of oils and fats and contamination.

Specification	Requirement
Design Ignition	Must designed in strict accordance with the test method ASTM D93, Method A and B. Automatic movement of head for closing and opening of the cup Microprocessor controlled unit with digital easy to read display of the results
Ignition	Electric ignition and should also provide an automatic reignition facility Electric Ignitor should be encapsulated
Detection	Thermal detection (with metal sample temperature probe) of the flash to eliminate interference from water or silicone containing compound.
Cooling	Facility for built-in cooling connection
Measuring Range	Flash point Ambient to 350 °C or more
Heating System	Heat rate: 0.5 °C to 12 °C/min. Heating should be microprocessor controlled at the specified rate; the ignitor is activated and dipped at precisely the correct temperature and frequency
Temperature Measurement	Rugged metal and intelligent Pt 100 probe with built-in calibration, min 5 calibration points
Temperature calibration	Resistance check box for temperature calibration with calibration certificate from ISO 17025/NABL accredited Laboratory
Sample Stirrer	Automatic stirrer: test method or user-defined from 0 rpm to 250 rpm or more

Barometric Pressure Sensor	Built-in sensor for automatic correction of flash point for standard barometric pressure vis-à-vis with final result. Pressure units: Pa, kPa, bar, mbar, psi, mm Hg (Torr) etc.
User Interface	Touchscreen, alphanumeric data input, bar code reader, HDMI
UPS	UPS/Stabilizer as required for functioning of the equipment
Safety device	Safety device for fire protection with alarm
Power Supply	AC 100 V to 240 V, 50/60 Hz
Number of LED indicators available to indicate Power input	1
DC Voltmeter Range	0-30 Volt
DC ammeter Range	0-50 in milli Ampere
Accessories	Brass Test Cup with Handle, Thermometer Holder, Cover Assembly
Operating manuals, service manuals, other manuals	Should provide:- User, technical and maintenance manuals in English language List of procedures required for local calibration and routine maintenance service and operation manuals to be provided Advanced maintenance tasks documentation, if any.
Supplier/ Manufacturer	<ul style="list-style-type: none"> • Should be FDA/CE/BIS approved product. • Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements (or equivalent IS/ International Standard) • All suppliers must submit a copy of catalogue showing technical specifications.
Warranty	Minimum three years comprehensive onsite warranty with one Preventive Maintenance from the date of installation and commissioning every year. Warranty to be provided by OEM/Manufacturer.
IQ/PQ/OQ	On site IQ, OQ of instrument along with document to be provided & supplier to assist till satisfactory PQ of instrument

4. FUME HOOD (Heavy Duty High Suction)	
Application: It is safety equipment used in all chemical laboratories to limit human exposure to hazardous or toxic fumes, vapours or dusts. Fume Hoods with floor mounted systems are designed to meet the challenges when working with chemicals, chemical fumes and other flammable materials etc. with a high degree of efficiency.	
Specification	Requirement
Coupling	Direct
Balancing	Dynamically
Overall Dimensions / Working Size	The system should have following Overall Dimensions: <ul style="list-style-type: none"> • Overall Length of Fume Hood: 1500 -1550 mm • Overall Width of Fume Hood: 750 - 1500 mm • Overall Height of Fume Hood: 1500 – 2500 mm • Length of Base Cabinet: 1000 – 1500 mm • Height of Base Cabinet: 700 - 800 mm

Body Features	<ul style="list-style-type: none"> • Double Wall Construction • Body thickness: 10 mm (Min.) • Completely made from GI sheet with Highly corrosion resistant epoxy powder coating • Inner Chamber - Chemical & Heat Resistance, Fire retardant, smooth finish, easily cleanable, made out of durable PRL sheets of thickness 5 mm (Min.)/ SS 304 of 18- 20 gauge thickness. • Should be provided with Fume Hood installation Kit and Accessories • Should be provided with Safety Device Trip
Working Table Top	<ul style="list-style-type: none"> • Granite / M.S Powder Coated Sheet Covered with P.P Sheet/ SS 304 • Thickness of granite 18 mm (Min.)
Utility connections	<ul style="list-style-type: none"> • Should be provided with Utility Pipe lines for Nitrogen, Compressed Air, Water
Outer Covering (MoC)	CRC, 18G, Epoxy Powder Coated
Exhaust Duct	<ul style="list-style-type: none"> • Chemically Resistant, PVC/PP duct pipe • Provided with bends, dampers, transitions and clamps up to blower • All joints should be curved in order to avoid any backtracking of fumes and a smooth flow to exhaust fumes • Two exhaust ports connected to the fume hood exhaust system internally
Sink & Tap	<ul style="list-style-type: none"> • Size: 100 – 200 mm • Shall made of chemically resistant material • No leakage shall observe from Outlet Nipple • Shall be provided with Single way / Three-way swan neck tap
Baffle Arrangement:	Removable, Chemically Resistant PVC Back Baffle to capture and remove/ slide fumes instantly at faster speed Three-point suction system (for light, normal & heavy fumes) with baffle to ensure smooth and immediate removal exhaust of fumes.
Exhaust Blower & Motor	<ul style="list-style-type: none"> • Motor: Centrifugal Type, Motor • Blower: 1.0 HP motor (3 phase, 50Hz, AC Supply) with phase MCB. Direct Driven, totally enclosed fan-cooled (TEFC), Squirrel Cage Induction Motor • Chemical & heat resistance heavy-duty epoxy coated • Min. 4 Watt
Scaffold/ Grid	Should be provided to hold the chemicals and apparatus
Door / Sash/ Shutter	<ul style="list-style-type: none"> • Thickness – 4 mm (min.) • Material - Toughened Glass • Door vertical Folding Type with adjustable height
Air Flow	<ul style="list-style-type: none"> • Low Constant Volume Exhaust Type • Approx. 100 cubic meter/ hour
Noise Level	Not more than 65 dB
Face Velocity	0.5 m/s or 100 feet per minute
Shelves in Base Storage Units/ Cabinets	<p>Number – 2</p> <p>Type – Movable (With or Without Wheels)</p>

Illumination	Florescent Lights – 2 nos. (Min.), 40 Watt
Electrical Arrangements	Min. 2 Nos. 15/5 amps 3 pin electric socket Switch for blower; Switch for Lightings
Power Requirement	220/ 230 Volts
Accessories	Gas / vacuum tap Additional set of sockets Cabinet base of the fume hood is equipped by fixed supports and internal shelf for the reagents storing.
Operating manuals, service manuals, other manuals	Should provide:- User, technical and maintenance manuals in English language List of procedures required for local calibration and routine maintenance service and operation manuals to be provided Advanced maintenance tasks documentation, if any.
Supplier/ Manufacturer	<ul style="list-style-type: none"> • Should be FDA/CE/BIS approved product. • Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements (or equivalent IS/ International Standard) • All suppliers must submit a copy of catalogue showing technical specifications.
Warranty	Minimum three years comprehensive onsite warranty with one Preventive Maintenance from the date of installation and commissioning every year. Warranty to be provided by OEM/Manufacturer.
IQ/PQ/OQ	On site IQ, OQ of instrument along with document to be provided & supplier to assist till satisfactory PQ of instrument

5. CONDUCTIVITY AND TDS METER

Application: The instrument is used to measure conductivity, total dissolved solids (TDS) and temperature of the solution.	
Specification	Requirement
Range	Conductivity: 0 μ S/cm - 200 mS/cm; TDS: 0 - 200 g/L or ppt; Temperature: 0 - 100 °C
Resolution	Conductivity: 0.01 μ S/cm TDS: 0.01 mg/L or ppm to 0.1 μ g/L or ppt; Temperature: 0.1 °C
Accuracy	Conductivity: \pm 1% full-scale; TDS: \pm 1% full-scale; Temperature: \pm 0.5 °C
Calibration	Calibration by certified reference material traceable to SI units or ISO 17034.
Ready Indicator	Should inform when readings are stable
Selectable Cell Constant	Yes
Auto-Ranging	Across 5 Conductivity and TDS ranges Up to 5-point push button Calibration
Non-Volatile Memory	Shall hold up to 100 data points

Integral Electrode Holder	Yes
USB port	Yes
Display	LED
Additional Requirements	<ul style="list-style-type: none"> • Conductivity calibration and verification standards that is traceable to certified international standard SRM NIST. • Calibration certificate and inspection
Accessories	<ul style="list-style-type: none"> • Electrode holder • One spare electrode
Battery back-up	Suitable rechargeable battery
Operating manuals, service manuals, other manuals	Should provide:- User, technical and maintenance manuals in English language List of procedures required for local calibration and routine maintenance service and operation manuals to be provided Advanced maintenance tasks documentation, if any.
Supplier/ Manufacturer	<ul style="list-style-type: none"> • Should be FDA/CE/BIS approved product. • Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements (or equivalent IS/ International Standard) • All suppliers must submit a copy of catalogue showing technical specifications.
Warranty	Minimum three years comprehensive onsite warranty with one Preventive Maintenance from the date of installation and commissioning every year. Warranty to be provided by OEM/Manufacturer.
IQ/PQ/OQ	On site IQ, OQ of instrument along with document to be provided & supplier to assist till satisfactory PQ of instrument

6. TURBIDITY METER

Application: Turbidity meter is used for the detection of turbidity of liquids and aqueous solutions

Specification	Requirement
Type	Bench Top
Range	0-1000 NTU
Principle of Operation	Nephelometric
Automatic Range Selection	0.01 to 19.99 NTU, 20.0 to 99.9 NTU, 100 to 1000 NTU
Accuracy	± 2% of reading ± 1 digit for 0 – 500 NTU ±3% of reading ±1 digit for 501 – 1000 NTU
Response Time	Less than 6 seconds
Calibration	4 points
Calibration Kit	set 3 sample vials
Resolution	0.01 NTU (0 to 19.99 NTU), 0.1 NTU (20 to 99.9 NTU), 1 NTU (100 to 1000 NTU)
Display	Digital LED
Light Source	Tungsten halogen Lamp/ Infra-Red Emitting diode
Detector	Photo Diode

Connectivity	RS232 interface
UPS	UPS/Stabilizer as required for functioning of the equipment
Additional Requirements	<ul style="list-style-type: none"> • Calibration and verification standards that is traceable to certified international standard SRM NIST. • Calibration certificate and inspection
Accessories	USB cable or RS232 cable for PC connection Portable Turbidimeters Reusable Glass Cuvettes and stand
Operating manuals, service manuals, other manuals	Should provide:- User, technical and maintenance manuals in English language List of procedures required for local calibration and routine maintenance service and operation manuals to be provided Advanced maintenance tasks documentation, if any.
Supplier/ Manufacturer	<ul style="list-style-type: none"> • Should be FDA/CE/BIS approved product. • Electrical safety conforms to the standards for electrical safety IEC 60601-General requirements (or equivalent IS/ International Standard) • All suppliers must submit a copy of catalogue showing technical specifications.
Warranty	Minimum three years comprehensive onsite warranty with one Preventive Maintenance from the date of installation and commissioning every year. Warranty to be provided by OEM/Manufacturer. .
IQ/PQ/OQ	On site IQ, OQ of instrument along with document to be provided & supplier to assist till satisfactory PQ of instrument

7. FROST FREE REFRIGERATOR

Application: It is commonly used equipment at microbiology lab for the purpose of storage of items which required low temperature i.e., between 4 °C to 8 °C e.g. food samples, media, chemicals, reagents, cultures.

Specifications	Requirements
Design	<ul style="list-style-type: none"> • Vertical with wheels • Frost free, CFC free, Automatic Defrost • – 5 Height adjustable shelves • Internal LED Lighting • Single Triple-Pane Glass Door with ergonomic handle Key Lock • Automatic door closing • Fan forced air circulation to ensure stable & uniform preservation environment.
Controller	<ul style="list-style-type: none"> • Microprocessor Temp. Control Controller with 0.1°C resolution • Controller to Display data about the unit and used to control temperature • Control panel should be at eye level with Digital Temperature display & Alarms

Construction	Electro-galvanized steel with white, oven baked epoxy- polyester, anti-microbial, powder-coated finish with 304 Stainless Steel inner chamber
Capacity	300 - 350 L
Temperature	<ul style="list-style-type: none"> • Range: +1° C to +10° C • Uniformity: ±3°C
Alarm	Open door, High/Low temperature, Clogged condenser filter
Stabilizer	Suitable Stabilizer as required for functioning of the equipment
Warranty of compressor in years	10 years or more
Operating manuals, service manuals, other manuals	Should provide:- User, technical and maintenance manuals in English language List of procedures required for local calibration and routine maintenance service and operation manuals to be provided Advanced maintenance tasks documentation, if any.
Supplier/ Manufacturer	<ul style="list-style-type: none"> • Should be FDA/CE/BIS approved product. • Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements (or equivalent IS/ International Standard) • All suppliers must submit a copy of catalogue showing technical specifications.
Warranty	Minimum three years comprehensive onsite warranty with one Preventive Maintenance from the date of installation and commissioning every year. Warranty to be provided by OEM/Manufacturer.

8. DEEP FREEZER (UPRIGHT)

Application: Deep freezers are used to store samples, reagents & kits, reference materials at low temperature.

Specification	Requirements
Type	Vertical
No of Door	Single
Position of Door	Front
Type of Insulation	PUF
Frost Free	Yes
Type of Cooling	Direct
Castor	Heavy Duty Lockable
Capacity	: 250 L or higher
Shelves/ Drawers	Sealed 5-7 pullout drawers / shelves of different sizes that can be adjusted for storage flexibility
Material Of Chamber Interior	Stainless steel, preferably 304 grades
Material of Chamber Exterior	Stainless steel, preferably 304 grades
Door Material	Stainless steel, preferably 304 grades
Finish	Powder coated exterior finish

Temperature Range	- 10 °C to - 30 °C
Temperature Uniformity in Degree Celsius	±3 °C or less
Temperature Stability of System in Degree Celsius	±3 °C
High Quality Door Seals	Yes
Lockable Outer and Inner Lids	Yes
Control	Fully programmable microprocessor controlled with membrane keypad and eye level control panel
Display	Easy to read , LED control panel and alarm status with integrated diagnostics
Acoustic Safety alarms	Should be equipped with for High/low temperature, door ajar and malfunction alarms, sudden power failure, system failure and battery low
Temperature History	Data logger for temperature and temperature history which can be downloaded via a USB port Yes
Should Have Battery Back Up for The Display and Security Lock for The Display	Yes
Refrigerants	CFC-Free, HCFC-Free non inflammable refrigerants
Warranty of stabilizer in years	3 Year
Warranty of compressor in years	10 years or more
Voltage Stabilizer	Stabilizer as required for functioning of the equipment
Operating manuals, service manuals, other manuals	Should provide:- User, technical and maintenance manuals in English language List of procedures required for local calibration and routine maintenance service and operation manuals to be provided Advanced maintenance tasks documentation, if any.
Supplier/ Manufacturer	<ul style="list-style-type: none"> • Should be FDA/CE/BIS approved product. • Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements (or equivalent IS/ International Standard) • All suppliers must submit a copy of catalogue showing technical specifications.
Warranty	Minimum three years comprehensive onsite warranty with one Preventive Maintenance from the date of installation and commissioning every year. Warranty to be provided by OEM/Manufacturer.

9. CENTRIFUGE (REFRIGERATED)

Application: A Multi-functional, general purpose High speed refrigerated bench top centrifuge used for separation of supernatants (liquid portion) from pellets (solid portion)

Specification	Requirement
Base Unit	<ul style="list-style-type: none"> • Table top centrifuge with maintenance free brushless motor and have low access height • CFC free refrigerant • LCD Digital Display of time, speed and Temperature and run conditions • Compatible with all fixed angle and swinging bucket rotors • Automatic rotor recognition facility • Automatic imbalance detection and cut-off • Should be programmable with easy preset programs for fast temperature for pre-cooling and short spin. • Should have motorized lid lock system
Temperature Range	-5.0 °C to 40 °C
Speed	Maximum speed: Minimum 12000 RPM (with no load) or better
Rotors	<ul style="list-style-type: none"> • Fixed Angle Rotor for • 50 ml Centrifuge Tube (6 place) • 15 ml Falcon tube (8-12 Places) • 1.5-2.0 mL Centrifuge tubes and adaptors for 0.2- and 0.5-mL tubes/ Centrifuge tube • Rotor for 2.0 mL Centrifuge tubes (12 places or better) <p>Deep-well micro plates rotor Two 96 well plates for swing out type with RPM 3500</p>
Accessories	<p>Bottles, falcon tubes, adaptors etc</p> <p>One set of Other items (rotors/adaptors) required for improving the applicability/system performance should to be quoted as optional</p>
Power Requirement	220 v to 240 v -50 Hz If a voltage stabilizer is required, it should be supplied along with the unit
Operating manuals, service manuals, other manuals	<p>Should provide:-</p> <p>User, technical and maintenance manuals in English language List of procedures required for local calibration and routine maintenance service and operation manuals to be provided Advanced maintenance tasks documentation, if any.</p>
Supplier/ Manufacturer	<ul style="list-style-type: none"> • Should be FDA/CE/BIS approved product. • Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements (or equivalent IS/ International Standard) • All suppliers must submit a copy of catalogue showing technical specifications.
Warranty	Minimum three years comprehensive onsite warranty with one Preventive Maintenance from the date of installation and commissioning every year. Warranty to be provided by OEM/Manufacturer.

10. VORTEX MIXER (CYCLOMIXER)

Application: Vortex Mixer is general-purpose laboratory equipment. It is used for mixing liquids in test tubes. It operates at various speeds and can be operated continuously or by “touch” activation.

Specification	Requirement
Speed and control	User settable 200 - 3000 rpm or better
Operating Modes	ON (continuous), OFF, and TOUCH mix
Head	Standard rubber cup
Base	Heavy metal with Four suction cups
Movement	Orbital type movement
Accessories	Flat head Horizontal head, 12 x 1.5 mL Horizontal head, for 4 x 15 mL
Low Speed Operation Should Be Possible in Touch Activated Operation	Yes
Operation Type	Low Noise
Power Supply	200-240Vac 50Hz
Operating manuals, service manuals, other manuals	Should provide:- User, technical and maintenance manuals in English language List of procedures required for local calibration and routine maintenance service and operation manuals to be provided Advanced maintenance tasks documentation, if any.
Supplier/ Manufacturer	<ul style="list-style-type: none"> • Should be FDA/CE/BIS approved product. • Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements (or equivalent IS/ International Standard) • All suppliers must submit a copy of catalogue showing technical specifications.
Warranty	Minimum three years comprehensive onsite warranty with one Preventive Maintenance from the date of installation and commissioning every year. Warranty to be provided by OEM/Manufacturer.

11. LOVIBOND TINTOMETER

Application: It is a visual and automated color measuring instruments synonymous with accuracy in the measurement of color in edible oils, beverages & foodstuffs	
Specification	Requirements
Measuring principle	Visual, in terms of Lovibond® units
Modes	Transmittance, reflectance Range 0.1 - 79.9 Red, Yellow; 0.1 - 49.9 Blue; 0.1 - 3.9 Neutral
Resolution	0.1 Lovibond® unit
Optical system	11 glass-filled nylon racks containing a graduated range of Lovibond® color glasses
Viewing system	Fully adjustable, prismatic with integral blue filter for light standardization
Light source	2 x 12 Volt, 10-Watt tungsten halogen lamp Illuminant approximates to daylight
Path length	Up to 153 mm (6")
Power pack	12 Volt AC, switchable to suit 220/110 Volt supply Approvals CE Instrument housing Fabricated sheet steel with a tough, textured paint finish
Accessories	Conformance filters and certified colour reference solutions representing a range of Lovibond® colours, for quick and simple quality control checks on instruments and operators.
UPS	UPS/Stabilizer as required for functioning of the equipment
Validation	For validation vendor should having own capability with their own company trained service engineer to perform validation No third part validation will be entertained. One validation at the time of installation should be done by company personnel
Operating manuals, service manuals, other manuals	Should provide:- User, technical and maintenance manuals in English language List of procedures required for local calibration and routine maintenance service and operation manuals to be provided Advanced maintenance tasks documentation, if any.
Supplier/ Manufacturer	<ul style="list-style-type: none"> • Should be FDA/CE/BIS approved product. • Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements (or equivalent IS/ International Standard) • All suppliers must submit a copy of catalogue showing technical specifications.
Warranty	Minimum three years comprehensive onsite warranty with one Preventive Maintenance from the date of installation and commissioning every year. Warranty to be provided by OEM/Manufacturer.
IQ/PQ/OQ	On site IQ, OQ of instrument along with document to be provided & supplier to assist till satisfactory PQ of instrument

12. CIRCULATING WATER BATH

Requirement	Specifications
Description of function	Gentle water circulation to achieve uniform temperature
Body	Epoxy Powder Coated exterior made with corrosive resistant stainless steel interior chamber. Interior: Made of Stainless steel (SS 304)
Capacity	10-15 Litres
Temperature Range	Working temperature range from +20°C to +99.9 °C
Resolution	±0.1°C
Temperature uniformity/	Temperature uniformity @ 37°C maintained at different places of water bath.
Temperature Stability	±0.2 °C
Maintenance	Convenient bath drains to easily clean and maintain bath
Top cover	Lift-up bath cover
Alarms	Audible alarms for Dry-running protection and over temperature
Safety features	Self-diagnosis function (Heater defective, Sensor defective, Set value abnormal, SSR short circuit and Overheat protector) Warning buzzer and alarm lump, Over current, short circuit breaker, Heater no-load operation prevention device
Display	Bright LED-Display with cutting-edge microprocessor technology with PID temperature control.
Timers	Optimize scheduling with auto-on and auto-off timers
Accessories	Stainless Steel / Polypropylene Test tube rack for 15-21 tubes of 23-25 mm and 25 -60 tubes of 12-16 diameter(each) 1no each Spring tray/ racks for Erlenmeyer flasks (250 and 500 mL)
Operating manuals, service manuals, other manuals	Should provide:- Calibration certificate for temperature from ISO/IEC 17025 certified laboratory. User, technical and maintenance manuals in English language List of procedures required for local calibration and routine maintenance service and operation manuals to be provided Advanced maintenance tasks documentation, if any.
Supplier/ Manufacturer	<ul style="list-style-type: none"> • Should be FDA/CE/BIS approved product. • Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements (or equivalent IS or International Standard) <p>All suppliers must submit a copy of catalogue showing technical specifications.</p>
Warranty	Minimum three years comprehensive onsite warranty with one Preventive Maintenance from the date of installation and commissioning every year. Warranty to be provided by OEM/Manufacturer.

13. DIGITAL POLARIMETER

Desired Requirement	Specifications						
Measuring Mode Optical Rotation, Specific Rotation,	Optical Rotation, Specific Rotation, Concentration, Sugar Degrees and any others. International Sugar Scale.						
Measuring Angular Scale	$\pm 89^\circ$ Arc Optical Rotation						
Accuracy	$\pm 0.01^\circ$ Arc for entire range of or better Measurement or better						
Resolution	0.001 $^\circ$ Arc or Better for Entire range of measurement or better						
Repeatability/Precision	0.002 $^\circ$ Arc or better						
Prism	Life time guarantee						
Temperature Probe Range	10 to 35 $^\circ$ C or better						
Temperature Accuracy & Stability	$\pm 0.005^\circ$ C or better						
Light Source	LED or tungsten halogen or Xenon lamp						
Wavelength	589 nm Na and anyone of the selective wavelength 633 nm/578 nm/ 546 nm/ 436 nm/ 405 nm						
Optical Density	Up to 4.0 Absorbance or better						
Temperature Control	With In-built Peltier module; Temperature Range 15 $^\circ$ C to 40 $^\circ$ C;						
Sample chamber	Be able to accept sample tubes 10 mm to 200mm						
Measurement Reading Time	User Selectable Continuous measurement and display or single shot Measurement						
Interface & Display	Integrated LCD/Touch Pad Color display /Membrane pad Color display						
Compliance	IP/BP/USP & FDA 21CFR Part 11 Complied Operational Software.						
Control Panel	Automatic Calibration preferably via Its Integrated LCD/Touch Pad /Membrane pad						
Data memory	4000 reading or better						
Communication Interfaces:	Min. 1 USB ports, RS 232 standard or later standard, Ethernet. Instrument to be supplied with Branded PC system Full HD Monitor, Processor: Intel core i5 or better, Operating system: Windows 10 Professional or better, Screen Size: 22- 23", RAM: 8 GB, Hard disk Drive size: 1 TB or more, Keyboard and Mouse						
Sample cells	Two Sample cells having Pyrex glass with stopper. <table style="margin-left: 40px; border: none;"> <tr> <td style="padding-right: 40px;">Sample Length</td> <td>Sample Volume</td> </tr> <tr> <td>1. 100 mm</td> <td>1.5 ml</td> </tr> <tr> <td>2. 200 mm</td> <td>2.0 mL</td> </tr> </table>	Sample Length	Sample Volume	1. 100 mm	1.5 ml	2. 200 mm	2.0 mL
Sample Length	Sample Volume						
1. 100 mm	1.5 ml						
2. 200 mm	2.0 mL						
Calibration Standards	NIST traceable Quartz plate standard						
Print Out	Facility for PDF Secure data for print out via USB memory stick - Ethernet FTP						
Operating manuals, service manuals, other manuals	Should provide:- User, technical and maintenance manuals in English language List of procedures required for local calibration and routine maintenance service and operation manuals to be provided Advanced maintenance tasks documentation, if any.						
Supplier/ Manufacturer	<ul style="list-style-type: none"> • Should be FDA/CE/BIS approved product. • Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements (or equivalent IS/ International 						

	Standard).
	All suppliers must submit a copy of catalogue showing technical specifications.
Warranty	Minimum three years comprehensive onsite warranty with one Preventive Maintenance from the date of installation and commissioning every year. Warranty to be provided by OEM/Manufacturer.

14. DIGITAL BUTYRO REFRACTOMETER	
Requirement	Specifications
Description of function	To measure refractive index (nD), BR Value, Brix Value (temperature compensation according to sucrose solution), concentration (%) (Temperature compensation according to samples), and temperature.
Scales	Refractive index (RI), Brix, BR value, Temperature corrected Brix, RI and BR value
Measurement range	RI 1.32-1.70 or higher, Brix 0-90% or better, BR value 30 -90 or better
Resolution	RI 0.00001, Brix 0.1% or better, BR value 0.1 or better
Accuracy	RI ± 0.0001 , Brix $\pm 0.1\%$ or better, BR value 0.1 or better
Precision	RI 0.0001, Brix ± 0.05 or better,
Temperature Display	$\pm 0.05^{\circ}\text{C}$ or better
Temperature Stability	$\pm 0.02^{\circ}\text{C}$ or better
Temperature Compensation	Peltier Controlled between 10°C to 80°C
Display items	Refractive index, Brix or concentration (%) and temperature
Interface & Display	Touch screen or LCD
Wavelength	589 nm
Operating modes	Continuous update or single scan
Light source	LED (Minimum 100,000 hours Life time)
Prism material	Sapphire
Prism Dish	316 Stainless Steel with PEEK spill barrier
Prism Seal	FDA and Class VI approved
Reading Time	Minimum 4 seconds
Output/input	Instrument to be supplied with Branded PC system Full HD Monitor, Processor: Intel core i5 or better, Operating system: Windows 10 Professional or better, Screen Size: 22- 23", RAM: 8 GB, Hard disk Drive size: 1 TB or more, Keyboard and Mouse USB, 1x Ethernet, 1xRS232 Serial Facility for PDF Secure data for print out via USB memory stick - Ethernet FTP Compliance FDA regulation as 21CFR Part11(Electronic Signatures& Audit trails) (Code of Federal Regulations, describes Electronic results & Electronic signatures)

	Method Storage & Display: More than 1000 Methods Should have GLP Features: Date/Time/Batch/Operator
Environmental factors	The unit shall be capable of being stored continuously in ambient temperature in the range of 5-40°C and relative humidity in the range of 30-90%.
Power requirements	Power supply: AC 200-240 V, 50 Hz auto ranging.
Operating manuals, service manuals, other manuals	Should provide:- User, technical and maintenance manuals in English language List of procedures required for local calibration and routine maintenance service and operation manuals to be provided Advanced maintenance tasks documentation, if any.
Supplier/ Manufacturer	Should be FDA/CE/BIS approved product. Electrical safety conforms to the standards for electrical safety IEC 60601- General requirements (or equivalent IS/ International Standard).
	All suppliers must submit a copy of catalogue showing technical specifications.
Warranty	Minimum three years comprehensive onsite warranty with one Preventive Maintenance from the date of installation and commissioning every year. Warranty to be provided by OEM/Manufacturer.

2. All other terms and conditions of the RFP will remain the same.

Sd/-
(Ravinder Kumar Narula)
Assistant Director (QA)

PRE-BID CLARIFICATION**: Procurement of Equipment for NFL, Raxaul (Group-II)**

13.DIGITALPOLARIMETER			
Desired Requirement	Specifications	Suggestions as per pre-bid meeting	FSSAI Comments
Accuracy	±0.01°Arc for entire range of or better Measurement or better	±0.005°Arc	No change
Resolution	0.01°Arc or Better for Entire range of measurement or better	0.001°	0.001° Arc or Better for Entire range of measurement or better
Light Source	LED or Xenon lamp, 100,000 Hrs. Lifetime	LED Lamp	LED or tungsten halogen or Xenon lamp
Wavelength	589 nm Na and Tungsten-halogen or Hg-Lamp (for 633 nm/578 nm/546 nm/436 nm/405 nm)	589 and one selective wavelength	589 nm Na and anyone of the selective wavelength 633 nm/578 nm/ 546 nm/ 436 nm/ 405 nm
Optical Density	Up to 3.0 Absorbance or better	2.0 OD	Up to 4.0 Absorbance or better
Data memory	>2GB	3000-4000 measurements	4000 reading or better
Communication Interfaces:	Min. 4 USB ports, RS-232 standard or later standard, Ethernet, VGA port, CAN bus.	One USB Port	Min. 1 USB ports, RS 232 standard or later standard, Ethernet
	Instrument should be compatible with	VGA Port not required	Deleted
	Common brands of PC, Keyboard, Printer and memory stick/external hard drives.	CAN Bus not required	Deleted
Calibration Standards	NIST traceable Standards for sugar solutions	OK	NIST traceable Quartz plate standard
Method Storage & Display	More than 1000 Methods	Included within memory storage	Deleted
Print Out	Facility for PDF Secure data for printout via USB memory stick	Printer, USB Pen Drive and via PC	No change
	-Ethernet FTP		

14.DIGITAL ABBE REFRACTOMETER-			
Requirement	Specifications	Suggestions as per pre-bid meeting	FSSAI Comments
Resolution	RI0.0001, Brix0.1% or better	RI : 0.00001 (5 decimal) To prove accuracy of 4 decimal resolution is must i.e. 5 decimal.	RI 0.00001
Temperature Display	±0.03°C or better	0.01°C	±0.05°C or better
Temperature Compensation	Peltier Controlled between 0°C to 80°C	Peltier Control: 10°C to 80°C.	Peltier Controlled between 10°C to 80°C
		0°C is impractical to achieve.	
Output/input	USB, 1xEthernet, 1xRS232Serial Facility for PDF Secure data for printout via USB memory stick-Ethernet FTP	500 data or methods	No change
	Compliance FDA regulation as 21CF R Part 11 (Electronic Signatures & Audit trails) (Code of Federal Regulations, describes Electronic results & Electronic signatures)		No change
	Method Storage & Display: More than 1000 Methods Should have GLP Features: Date/Time/Batch/Operator		No change