

Specification for procurement of scientific equipments against NIT No.02/08-09

Sl. No.	Name of Equipment	Specification	Qty.
1.	Multi parameter water analyser	Portable and sturdy, capable of analyzing the water quality parameters with potentiometric/colorometric/pectorphotometric techniques for respective parameters, useful both under field as well as lab conditions. Results should be of quantitative in nature with high precision and repeatability. Digital output device operated on D.C and A.C voltage. Instrument should include all standard accessories and two sets of required spares. Accessible service is most important.	01 No.
2.	UV-VIS Spectrophotometer	UV-VIS Spectrophotometer of 190-900 nm measurement wavelength range, resolution 0.1nm, wavelength accuracy ± 0.3 nm or less with auto wavelength correction, 50w halogen light source, Double beam photometric system, absorbance, transmittance, reflectance and energy photometric mode, photometric range -4~5 Abs, Transmittance 0~999.9%, photometric accuracy $\pm 0.002/0.004$ Abs complete with compatible cuvette set and other standard accessories like software's etc. and optional accessories.	01 set
3.	Water purification system	The system should have two Stage Prefiltration System with 1 Micron & 5 Micron Poly Propylene filter with noise free DC pump. It should have Iron removal Filter which can take care of iron content in input water upto 4 ppm & can deliver consistently 0.1 ppm at output. It should have a three stage purification process-primary purification by a Prefilter, secondary purification through a High-density RO membrane, final step with an Electro deionization (EDI) module. The resistivity cell should be coaxial with a cell constant of 0.01 cm^{-1} , System should measure and display compensated & non-compensated temperature accurate within $\pm 0.1^{\circ}\text{C}$. Product water quality – Resistivity – upto 18 Meg ohm –cm, TOC <5-10 ppb, bacteria- <1 cfu/ml, Pyrogen - <0.001EU / ml, Flow Rate ~1 to 2 liter/ hr. An application specific ultra pure cartridge for removal of organic contaminants and an absolute 0.22 micron validated pharmaceutical grade sterilizing PVDF membrane final filter. System should have a Storage Tank of 50 liters capacity with built in sensors for low/ high water level (optional). The Point of use gun should allow for volumetric dispensing (0.25-64.5L with 0.25L increment), and should discontinue un-attended dispense after 30 min (optional). The Water Purification System should have a footprint of <1sq mt. The System should have automatic display of alarms also quality parameters and routine maintenance should be indicated. It should have an option of connecting a UF cartridge to obtain Rinse and pyrogen free water.	01 set
4.	Water purification system	Produced water should be useable in critical application, HPLC mobile phase preparation, sample dilution in GC, HPLC, Atomic Absorption; preparation of buffer and cell culture media, reagent preparation in molecular biology etc.	01
5.	Weighing Scale	Manually operated with standard specification, maximum capacity 300 kg.	01 No.
6.	Platform Balance	Dial system, 120 kg Capacity, Standard & reputed brand make alongwith all required access.	01 No.

7.	Electrophoresis system with gel documentation system	<p>(a) Electrophoresis system: Complete system with Apparatus dimension (W x L x D : ~ 13 x 22 x 10 cm), gel size ~ 8 x 10 cm, with chamber safety lid, UV transparent gel tray, with gel casting tank, different combs (> 10 wells, 1.0 mm thick), rubber feet for chamber and manual. System to be supplied with Low voltage Power supply unit with timer function having keypad to adjust output voltage, time and current at any time; operate at Output 0-500MA at 0-400 Volt or 0-1000mA at 0-200 V, max power 200 Watt with output/current adjustable in 1 V or 1 mA step, timer in 1 min steps; short circuit and overload protected.</p> <p>(b) Gel documentation system: High sensitivity, monochrome CCD digital video camera (minimum resolution 582 x 752 pixels), with motorized zoom lens (11.5 – 69 mm) or manual zoom lens (8-48) and Ethidium bromide filter.</p> <p>Darkroom cabinet with safety cut-off interlock (for safety from UV exposure) to Transilluminator with compact size. Control unit incorporating camera power supply, wipe-clean membrane keypad user interface or buttons, 256/512/1024 mb memory card (saves images as TIFF files) and BNC output to video printer. Controls for live/freeze/save/text and monitor saturation. Built in network card or flash card.</p> <p>UV Transilluminator with dual intensity 100/70% switch, universal voltage (100-240, 50/60Hz.), filter size: 21 x 26 cm, wavelength: 312 nm.</p> <p>PC software package which enables opening, manipulation and analysis (1D or 2D) of images with saving in a choice of file formats (TIFF, GIF, JPG, etc.) Functions to be included: annotation, brightness/ contrast, rotation and inversion, saturation monitoring of live image. UV/WL Conversion Screen (To observe the gel under fluorescence light). Warranty for 3 years or more for both the system.</p>	01 set
8.	Portable Ultra Sono-graphy equipment with all standard accessories	Exclusive veterinary version with a frequency range of 3.5 to 10 MHZ, 9-inch B/W monitor, 4-stage dynamic focus transmitter and real-time dynamic focus receiver, display in B, B+B, B+M, M modes, 256 grey scales, with a flash memory of 60 images. With image printer, trolley, biopsy guide, 3.5, 5.0, 7.5 probes and rectal probe, video output two channels and input one channel.	01 set
9.	Bomb Calorimeter	Automatic Isoperibol Calorimeter, Precession (RSD) 0.1%, tests 6-8 per hour, fixed head and bucket, all accessories including oxygen cylinder. This design concept makes it possible to offer automation of the full calorimetric determination. Instead of removing the entire combustion bomb, opening it, washing it, recharging it and reinstalling it in the calorimeter, the operator simply removes the head of the vessel, replaces the fuel capsule with the next sample, installs the cotton fuse and reinserts it in the cylinder.	01 No.
10.	Automatic Weather Station	Basic Weather Station 200 (BWS 200) consisting of weatherproof enclosure containing data logger with power supply, solar panel and different sensors. Data logger should be of high accuracy and fully programmable, accuracy of measurements $\pm 0.25\%$, temperature accuracy $\pm 0.3^{\circ}$ C, relative humidity accuracy $\pm 2\%$, wind speed accuracy ± 0.5 m/s, sensitivity of rainfall measurement ± 0.20 mm. Enclosure should be of fiber glass having dimension 305 x 250 x 120 mm, solar panel model SOP 5/X rated up to 4.5 w and 260 mA. PC 200 w software attached with the model for automatic data recording.	01 set

11.	Electronic Field Balance	5.0 kg Capacity (It will be used for data recording of different crops such as vegetable crop like to made, potato coater. Cash, Mushroom, ladyfinger, onion, cowpea & Bottle gourd etc. under crop desiccator's crop).	01 No.
12.	Electronic field Balance	Microprocessor controlled with precision load cell having bright LCD display. Built in Tare facility; having weighing capacity of 10 kg with resolution of about 02 kg and having calibration facility. The platform size of the balance should be about 36cm x 30 cm. The base plate should be of CRCA Zinc plated, and body powder coated with anticorrosive, pan should be of SS, Display LCD membrane key pad. SMPS supply 220 V AC with facility of computer interface.	01 No.
13.	Electronic single Pan Balance	320 g capacity with 0.01 mg readability, setting time <50 sec. with all standard accessories.	01 No.
14.	Electronic chemical balance	Electronic balance with readability and repeatability of 0.0001 g, with maximum load of ~ 200 g; weighing pan size of 90 mm diameter or more; calibration adjustment at key stroke with external weight; dynamic weighing with auto or manual start; Option of counting, weighing in percent, mass unit conversion by toggling, recall weight; display keypad with zero/tare, date/time, feed/print functions, glass draft shield with sliding doors with free access from sides and above; Warranty for 5 years or more.	01 set
15.	Hot air oven	Stainless steel, triple wall in construction, inner chamber made of heavy gauge SS sheet, middle wall and outer wall jacket made of steel sheet finished with moisture proof and heat resistant silver ash hammertone spray paint. Space between the walls of chambers and door adequately insulated with best quality fiber glass wool. Thermostat control, temperature range 50 to 300 ⁰ C, digital controller cum indicator, complete with thermometer and connection cord etc.	01 No.
16.	Hot plate	Standard quality, temperature up to 370 ⁰ C, automatic temperature regulator	02 No.
17.	BOD Incubator	Double walled with the inner chamber should be made of anodized aluminum or stainless steel and outer of mild steel or Sheet steel. It should be flush fitting insulated door with magnetic gasket. Full view glass door should be provided with inner Acrylic door. Temperature range about 5 ⁰ C to 60 ⁰ C; Operating sensitivity should be approx. 0.5 ⁰ C; Temperature control should be by thermostat and complete with 3 removable and adjustable shelves, forced air circulation and digital thermometer. The approx internal should be of 90 (H) x 60 (W) x 60(D) cm and capacity about 340 liter (cu. Ft.).	01 No.
18.	BOD incubator	Capacity around 200 liter, CFC free refrigerant, temperature range 5 to 60 ⁰ C, made of stainless steel, temperature control, air circulation	01 No.
19.	Clinical Laboratory Centrifuge with standard accessories and rotors.	Microprocessor controlled operation, brushless induction motor, Programmable centrifugation cycles, automatic imbalance detection, Automatic rotor recognition, bright, easy-to-read digital display, Maximum RCF around 3650 x g with maximum volume of 300 ml for fixed angle rotors. Maximum RCF around 2650 x g with maximum volume of around 240 ml for swing out rotors. Various adapters of rotors for different applications. Speed set 300-6500 rpm and timer set 1-99 min minimum.	01 No.

20.	Refrigerated high speed centrifuge (Medium range)	Microprocessor controlled, LCD display, refrigerated table top centrifuge with max speed 18000 rpm, max capacity up to 4 x 200 ml, Programmability with > 10 programs, speed accuracy ± 2 rpm at 1000 rpm or ± 20 rpm at max speed, preset speed in increments of 100 rpm or 100g or less, acceleration and deceleration in linear rates, dynamic braking system, temperature settings from $- 10^{\circ}\text{C}$ to 40°C with 1°C increment and $\pm 2^{\circ}\text{C}$ accuracy or less, per-cooling at standstill, non-CFC refrigerant, Safety features like over speed detection, imbalance cut off, over temperature detection, auto lid lock with emergency lock, rotors for 30 x 1.5/2.2 ml tubes and 10x 10ml or 15ml tubes; warranty for 2-3 years or more for centrifuge and more than 7 years for rotors.	01 set
21.	PH meter	Bench top pH/ORP/Temp meter. Auto calibration and automatic temperature compensation, Simultaneous display of pH, ORP and temperature. LCD display, Resolution: 0.001/0.01/0.1 pH Accuracy: ± 0.005 , pH range 0 to 14.0 or higher, ORP range ± 1999.9 mV, Temp range- $- 5$ to $+105^{\circ}\text{C}$, output via RS-232 and recorder, complete with compatible combination electrode, stand, cable and other accessories, operational voltage 220 v AC direct or with adapter	01 No.
22.	CVT	5 KVA with standard specification and accessories.	01 No.
23.	Metabolic shaker	Double walled, convection heated and cooled unit. Platform can withhold at least 16 flasks of 500 ml sizes, shaking speed 80-400 RPM, temperature ranges 5 degree C above ambient to 70 degree C, temperature sensitivity $\pm 0.5^{\circ}\text{C}$ or better, readability 0.1 degree C. It should have adjustable alarm, safety thermostat, heavy-duty good quality motor, light control, shelves and other accessories. Our units are provided with door operated illumination system comprising of fluorescent lights.	01 No.
24.	Rotary shaker	40-400rpm, refrigerated, digital model, with maximum load of 50lb at 400rpm and LED	01 No.
25.	Vaccum pump	Vaccum pump should be of rotaryped, pump oil sealed, vibrationless with high efficiency. Air displacement capacity 200 liters per minute. Motor capacity 1 HP Motor should be of heavy duty and high quality.	01 No.
26.	Deionizer	Double of four bed, with in-built prefilter and very high exchanging capacity, non-corrosive cation and anion resin columns. Output minimum 50 liters per hour.	01 No.
27.	Autoclave	Vertical double wall chamber, inner made of stainless steel of outside of mild steel/stainless steel; fitted with safety valve, pressure gauge, release valve and automatic cut off type pressure controller; Redial locking system for easy and uniform locking and having leak proof seamless gasket.	01 No.
28.	Autoclave	Vertical, 50/60 L capacity with digital temperature indicator, pressure gauze, release valve and other standard fittings	01 No.
29.	Autoclave	Vertical, 25/30 L capacity with pressure gauze, release valve and other standard fittings	01 No.
30.	Soxhtech apparatus	Automatic, 6 places with thimbles and other accessories.	01 No.
31.	ELISA Plate Reader	Wavelength range of 340-800nm with resolution of 0.001 OD, Temperature control on board graphical thermal printer, computer interface bi-directional serial communication port, compatible with 8 and 12 well strip plates.	01 No.
32.	Micro washer plate	Compatible with flat, U and V bottom plates, Programmable needle position for bottom washing dispense speed control and plate shaking option aerosol protection cover.	01 No.

33.	AI Set	Complete AI set for cattle	01 No.
34.	Pressure Cleaning System	High pressure waterjet cleaning system complete with pump, Pipe, nozzle etc suitable for cleaning of floors, dairies etc.	01 No.
35.	Oxygen electrode	<p>Oxygen electrode unit: DWI/AD electrode unit; cast acrylic construction with reaction vessel; adjustable sample volum (200 μl to 2.5 ml); integral oxygen sensor; magnetic stirrer, typical output 1 μA at 21% oxygen; residual current in zero oxygen typically <0.2 μA, response time 10-90% in < 5 seconds; oxygen consumption <0.015 μmol hr⁻¹.</p> <p>Electrode control: Measuring range 0-40% oxygen, min oxygen resolution typically 10×10^{-6} μmol at 20^oC, software adjustable – back off, gain, data acquisition rate 0.2 – 10 readings/ second, RS232 bi-directional serial communication at ~40000 baud rate. Power requirement 12V DC 1.2 VA.</p> <p>Oxygraph control unit: RFI / EMI shielded, integral magnetic stirrer with software speed control (~150-1000 rpm); RISC based microcontroller, non-volatile memory for storage of Box-I.D. and stirrer calculation.</p> <p>Power supply: 90 to 260 V universal input mains supply, output 12V DC 2.5A windows, 3.5 inch disk drive or CD drive Warranty for 3 years or more for the system.</p>	01 set
36.	Freezer - 86 ^o C	<p>Upright model with Freezer Capacity (Volumetric): 300-400 liters, Temperature Range: -50^oC to 86^oC; Temperature Stability: $\leq \pm 1^{\circ}$C, Control & Display: Microprocessor based programmable Controller with digital display, Alarms for power failure, high or low temperature, Probe failure, door open, clean gasket, low battery, with hot condenser indicator and clean filter. High & low temp alarm setting and Calibration facility, Audible and visual alarm. Internal dimensions: ~ Width 600mm, Height 1000mm, Depth 600mm. Cryocoolant cassette back up, polyacrylic sub door, stainless steel interior, insulated main door, door handle sleek and easy for opening with latch & lock facility; Insulation: Type: Non-CFC foamed in place polyurethane; Estimated Kilowatts per 24 hours: 16; Breaker requirement: 15 amp. Dedicated; Warranty for more than two year.</p>	01 set
37.	PCR machine	<p>Thermal cycler with 0.2 ml, 0.5 or combi block with facility for plates and strips. Aluminium or Gold plated Block with Temperature: Maximum ramp rate ~ 3^oC/sec, Block uniformity at 50^oC <0.5^oC, Temperature range 0^oC to 99^oC with accuracy $\pm 0.1^{\circ}$C</p> <p>Heated Lid: Selectable heated lid temperature 30^oC- 100^oC with Heated lid enable/disable, Over-temperature cut-out.</p> <p>Programming: More than 100 number of programs, LCD display with alphanumeric Auto restart on power failure, Very low noise emission with Connection to PC.</p> <p>Warranty for more than three year.</p>	01 set
38.	Ion Selective Electrodes	<p>Electrodes should be of high sensitivity and repeatability. Easy to clean solid state/membrane electrodes for respective ions. Minimum measurement: 0.01 mg/ml. portable digital output display unit works on A.C an D.C. with all standard accessories and two sets of spares. Measurement required for Ammonia, Arsenic, Iron and Total Hardness.</p>	04 Nos.
39.	Universal hand Moisture Testing Machine	<p>Microprocessor based LCD Display showing moisture percentage with temperature date and time with the facility of calibration check, error correction and auto calibration, Automatic temperature compensation with temperature sensor, Moisture percentage range about 12-20%, Consistency $\pm 0.5\%$ with data logging and data storage capacity of about 200 readings.</p>	01 No.

40.	Binocular microscope with camera	<ol style="list-style-type: none"> 1. Magnification: 10 – 1500x 2. Illumination: 20 – 30 W halogen lamp, optional external, battery operated illumination. 3. Eyepiece tube: digital imaging head, Trinocular tube 4. Eyepieces: FOV 20mm minimum, 10x, 15x (lenses should be anti-fungus type)+ 5. Nosepiece: 4-6 position 6. Objectives: CP-Achromat, A-Plan, Achroplan 4x (NA 0.10 mm), 10x (NA 0.25 mm), 40x (NA 0.65mm), 100x (NA 1.25 mm) 7. Stage: Alumite coated surface, ergonomic stage drive, height and tension should be adjustable, x-y movable. 8. Application: Bright field, Dark field, Phase contrast, Polarization contrast, Fluorescent contrast microscopy. 9. Adapter for digital camera 10. Completer with compatible digital camera (up to 4-5 mega pixel minimum with removable storage media, CF Card II, 128 MB, with a up to 4x wide angle zoom lens, programmed auto, shutter priority auto, aperture priority auto and manual exposure control modes, fast, accurate five area multi auto-focus, TTL metering: multi-segment, center-weighted, spot and AF spot, shutter speed 10 min to 1/2000 sec and bulb setting, long rechargeable battery life, 110 min or longer, high quality LCD monitor, movie mode, time lapse move mode, playback options- frame, thumbnail, slide show, movie, USB interface). 11. Digital imaging software compatible to the camera supplied and the microscope. 	01 set
41.	Insect collecting and mounting kit (Survey Kit)	Contains: 12” diameter nylon aerial collecting net with 18” hardwood handle; fiberboard insect box with pinning bottom (9”x13”x2.5”); two pocket type, 4 oz, killing jars with plaster; 8 dram vial of nontoxic ethyl acetate killing fluid; spade tip, Nickel plated forceps; spreading board with 12” foam pinning surfaces and variable groove of 1/8” to 3/4”; three step hardwood pinning block; pack of insect pins (imported), size 12, 15, 18, 26, 30mm; 100glassine envelopes (2.75”x4.25”); 100 blank labels; naphthalene cone on mounting pins; label pen and point; illustrated instruction book.	01 Set
42.	Heavy duty Thresher	Heavy duty Thresher for 35 HP tractor mounted, standard & reputed brand make alongwith all required access. for use during wheat threshing.	01 No.
43.	Potato planter	Standard & reputed brand make alongwith all required access. for use during Potato Sowing.	01 No.
44.	Water Analyzing Kit	Water analyzing kit for measuring water quality (pH measurement range 0-14, Automatic temperature compensation, temperature measurement range - 100 ⁰ C to 200 ⁰ C; Conductivity measurement range – 0-200 micro and milli siemens in five ranges, D.O. measurement range 0-20 ppm, temperature compensation automatic, pressure adjustment 0-999 mm of Hg; ORP measurement range – 2000mV to + 2000 mV; TDS measurement range 0 – 200 ppt in five ranges; salinity measurement range 0-50ppt in five ranges; Salinity measurement range 0-5ppt, alphanumeric display, memory of more than 600 samples) complete with all accessories.	01 No.

45. Image analysis System (High Speed Computer + A3 Size printer - 1 set):-		
Base System	Intel(R) Core(TM)2 Quad Processor Q9550 (2.83 GHz, 12MB L2 Cache, 1333MHz FSB)	1
Operating System	Pre-Loaded Genuine Windows Vista(R) Home Premium OEM Version, Genuine Windows Vista(TM) Premium label 64 bit, Genuine Windows Vista(R) Home Premium 64 bit, SPI (English/Hindi) DVD Media, Added performance for entertainment and movie making, Features the new 3D Aero Graphics interface. Includes Windows Media Centre, Functionality, Movie Maker, advanced photo feature and DVD authoring, 2GB + RAM, PC-Restore, Vista(TM) Welcome.	1
Monitor	UltraSharp(TM) 19" Widescreen Flat Panel LCD Monitor (Analog & DVI)	1
Memory	4GB (4x1GB) NECC Dual Channel DDR2 800MHz SDRAM Memory	1
Hard Drive	250GB SATA 3.0Gb/s Hard Drive with Native Command Queuing	1
Additional Hard Drive	250GB SATA 3.0GB/s Additional Hard Drive with Native command Queuing, 2nd HDD Screws, 2nd HDD SATA Cable	1
Optical Drives	Dual Drives 16X Max DVD-ROM + 16X DVD+/-RW with Dual Layer Write Capabilities, Roxio Creator v9.0 Software, 16X DVD+/-RW with Dual Layer Write Capabilities, 16X Max DVD-ROM Drive	1
Video Card	512MB PCIe(TM) X 16 NVIDIA (R) GeForce(R) 8800 GT w/TV -Out & Dual DVI	1
Sound Card	Integrated 7.1 Audio	
IEEE 1394 Firewire	Dell(TM) IEEE Firewire 1394 PCI Card, 1394 CABLE	1
Hardware Support Services:	3Yr ProSupport for End Users: NBD Onsite Service	1
Installation Services:	System Installation	1
Installation, Education and More	3Yr. Complete Cover	1
Keyboard	USB Enhanced Multimedia Keyboard with built-in 2-port USB Hub	1
Mouse	Premium Optical Mouse, Mouse Mat	1
Software	Microsoft(R) Works 9.0, Word Processor/Spreadsheet/Database/ Calendar/Power point viewer/Email Toots.	1
Security Software Items should be Included in the System	McAfee® Security Center™ - 15 Months OEM Adobe reader (English):- Shipping Documentations DVD Media Kit Integrated Gigabit Ethernet Energy Smart Setting for Desktop Network Assistance	1 1 1 1 1 1
Colour laser Printer:	<ul style="list-style-type: none"> • Maximum Resolution (dpi): Horizontal (1200) & Vertical (600). • Print Speed: First copy out time (11 Sec), Black text (41 ppm), Black graphic (41 ppm), Colour text (41 ppm), Colour graphic (41 ppm). • Print Direction: For text (Bia directional) • Media Handling: Input (1100 plain paper), Maximum paper size (A3), Maximum No. of sheets (output) – 500, Manul feed facility, Duty cycle (pages/mith) – 150,000 to 200,000. • Connectivity: USB / Parallel Port. • Memory /Buffer: Built in RAM (512 MB), Built in RAM Upgradeable (1024 MB). • Environment Temp. – 15–30 (Deg. °C). • Relative Humidity – 10-85%. • Power Requirement: Voltage (Volts) – 220-240, Frequency (Hz) – 50-60, Power Consumption per Hr. (watts) – 1195, Power consumption (stand by) (watts) – 18-8, • Compatible operating system: Microsoft Windows XP (32 bit and 64 bit), 2000 (32 bit & 64 bit) and Windows Vista (32 bit and 64 bit). 	1 set