INDIAN COUNCIL OF AGRICULTURAL RESEARCH
ICAR RESEARCH COMPLEX FOR N. E. H. REGION
UMROI ROAD, UMIAM, MEGHALAYA-793 103

No. RC(S) 86/2012 **Dated Umiam, the 21st November' 2012.**

Sealed bids are invited for procurement of **ScientificEquipments/ Instruments** from the reputed registered firms/ manufacturers/ authorized dealers by ICAR Research Complex for N.E.H. Region, Umroi Road, Umiam, Meghalaya. Detailed specifications of the items & terms & conditions, etc are given below:-

1. **Cost of Tender paper of Rs. 1000.00 only**(Non – refundable) to be deposited in the favour of the Director, ICAR Research Complex for NEH Region, Barapani by means of Demand Draft/ Banker's Cheque, etc., payable at SBI, ICAR Complex Barapani. Non – submission of the cost of Tender paper shall lead to non – consideration of the Tender.
2. **Separate quotations must be submitted for individual items**. Every quotation should consist of two Bids- The techno-commercial bid (Bid 'I') and the financial bid (Bid 'II'). Both must be submitted in two separate envelopes to be sealed **and put in a single main cover. The outer main cover should be super scribed "TENDER NO.** ***RC(S)86/2012 dated 21/11/2012*** **for procurement of Scientific Equipments/ Instruments, I.C.A.R RESEARCH COMPLEX, UMIAM"** and addressed to "THE DIRECTOR, ICAR RESEARCH COMPLEX FOR NEH REGION UMIAM, MEGHALAYA-793103". The Bidding Firm should give their complete address on the bottom left corner of the Main Cover**. The Cost of the Tender as well as the Earnest Money along with all other Technical Details should be mandatory kept in the Technical Bid only**. **The Financial Bid should consist of the Rates, their detailed break –ups, etc. Non-compliance of this shall lead to non-consideration of the Bid**. All Tenders should be sent by Registered Post. Tenders to be hand delivered should be put in the Tender box, kept in the CAO(S) Office of the ICAR Research Complex for NEH Region, Umiam, Meghalaya-793103 not later than ***12:30 P.M. on 12th December, 2012***. Tenders received after the due date and time shall not be considered under any circumstances.
3. **The soft copy/CD of detailed specification of each particular item quoted by you should be mandatory kept in the Technical Bid only**.
4. **The rates quoted should be up to ICAR Research Complex for NEH Region, Regional Centres and Hqr. Umiam, Meghalaya, (as per the details) for the mentioned items.** The rates must be valid for at least for 6(six) months from the date of quotation.
5. **Price quoted must be given per unit and must be all inclusive, including packing, forwarding, Delivery charges, Taxes, VAT etc., as may be applicable.**
6. Attested copy of the up to date sales tax and income tax clearance certificate (if any) from the authority concerned should be submitted with the quotation.
7. Furnishing of related documents like detailed specifications, technical literature, brand name, model and make, catalogue, authorization letter, Dealership Certificate, price list (if any) etc. is mandatory, failing which the quotation shall not be considered. Dealership certificate/Agency Certificate for the manufacturer/ manufacturing firm should be enclosed if the rates are quoted by the Dealers/Agents.
8. **The supply is effected at DGS&D rate contract, wherever is applicable**. The rate should be quoted for list of items as per the tender document.
9. The Buyer shall not be responsible for payment of transit insurance charges.

10. Payment shall be made on actual delivery in good condition and successful installation and demonstration (which should be free of cost and must be completed before payment).
11. (**a) In case of imported goods, the price may be quoted in foreign currency and import will be on FOB basis.** However, custom clearance, Inland freight etc. will be the responsibility of the supplier and no separate charges will be paid for that, however, custom duty exemption certificate shall be provided. The supplier should inform well in advance for sending these papers. No demurrage charges will be paid. If the supplier desires, rate in corresponding Indian currency may be quoted. It will be at the discretion of the authority of ICAR Research Complex for NEH Region to accept Indian or Foreign currency prices.

(b) In case of any custom duty charge, applicable as per Govt. of India's Notification, the same may be paid by the firm which will be reimbursed to the Indian Agent (who should be a registered firm and with DGS&D) immediately, subject to the condition that the bill of entry in original along with all relevant papers are submitted immediately, after custom clearance and installation and demonstration of the items. Installation and demonstration should be free of cost.

(c) **The import & payment will be made by means of Foreign Bank Draft/ Site Draft in case of foreign imported goods.** Performance Bank guarantee of 10% FOB value valid till the end of warranty period should be submitted before the release of the security deposit. All bank charges outside and inside India shall go to the beneficiary's account. Performance bank guarantee of 10% FOB value, valid till the end of warranty period, should be submitted before the release of the security deposit. All bank charges outside and inside India shall go to the beneficiary's account. Draft making charges would go to the beneficiary's account and a scanned copy of the draft, if required, can be sent to the Indian agent by post. Draft would be handed over after successful installation and demonstration which should be completed within 45 days from the date of draft and submission of all documents like bill of entry etc.

(d) All imported items should be delivered up to destination i.e. all the import should be free of inland freight charges, insurance etc.

(e) **Indian Agency Commission rate and amount should be clearly specified as per rules. IAC, wherever applicable, will be paid in Indian Currency only.**

(f) In case of delay in supply, penalty will be imposed @2% per week, subject to a maximum of 10% of the FOB value

(g) Indian Agents quoting on behalf of their principal must be registered firms with DGS&D .They are also requested to provide necessary authorization letter from their principal along with the quotation.

(h) **ICAR Research Complex for NEH Region, Umiam, Meghalaya, being a Scientific and Research Organization, is exempted from payment of Excise Duty (Certificate to this effect will be provided).**

12. **The tenderers** [except those who are registered with the Central Purchase Organization & National Small Industries Corporation (proof should be mandatory enclosed)] **shall have to deposit 2.5% of the quoted amount** (for indigenous as well as for foreign items quoted in foreign currency, equivalent Indian currency may be deposited) **in the form of Demand Draft/ Banker's Cheque/ Bank Guarantee, valid for 6 (Six) months, drawn in favour of the Director, ICAR Research Complex for NEH Region, Umiam, Meghalaya, payable at Barapani, as a bid security, along with the quotation i.e to be enclosed in the Technical Bid. Non submission of the Bid Security with quotation shall make the quotation/ bid liable to be rejected.**
13. Performance Bank Guarantee is required for all indigenous items also. For items less than Rs.50, 000, the amount should be 5% of the actual cost of the equipment and for items more than 50,000.00 the amount should be 10% of the actual cost of the

equipment. The bank guarantee should cover the entire guarantee/ warranty period which should be of at least one year duration.

14. The selected tenderers must complete the supply/ installation/ demonstration within the stipulated time limit mentioned in the supply order. In case, the firm fails to execute the supply within the time limit, the bid security would stand forfeited and supply order shall be cancelled.
15. The guarantee/ warrantee should be from the date of installation. All guarantee/ warranty services should be attended within a maximum limit of 15 days, failing which, proportionate deductions from the security deposit may be made at the discretion of the Institute.
16. The Firm/ Agency run by the Non-Tribal should produce Trading License issued by the KHADC at the time of awarding the Contract.
17. The complete details regarding the Institutions/ Corporations/ Bodies, etc. where the Firm/ Dealer has made the supplies during the last 2/3 years should also be furnished, along with the supply orders.
18. The Bidders should mandatory provide their full Bank Details, PAN Card No. , IFS code No., and TDS so as to ensure e-payment to them directly on satisfactory completion of the Supply.
19. The Director, ICAR Research Complex reserves the right to reject any tender in part or full, without assigning any reason thereof.
20. Legal jurisdiction for all disputes shall be within the purview of the Shillong Court.
21. **All bidders shall give an undertaking that they fully and unconditionally agree to abide by all the terms and conditions which, if needed, may be modified at the discretion of the Competent Authority, in supply order, for which confirmation from the supplier shall be taken. Non submission of the undertaking may lead to rejection/ non-consideration of the tender.**
22. **The bidders should mandatory sign on every page of the Tender Document, which would show their unconditional acceptance of all the terms and conditions of the Tender Document.**
23. Tenders shall be opened on 12th December, 2012 at 1.00 p.m , ICAR Research Complex for NEH Region, Umiam, Meghalaya. Interested bidders may attend the opening.
24. Other terms & conditions, as may be decided by the Competent Authority from time to time, depending upon the condition & requirement of the supply. The intimation in this regard, shall be provided well in advance & the bidder/ supplier shall be bound by the said terms & conditions.
25. For any query/ clarification, the undersigned may be approached at:
    Contact No.: 0364-2570363 (Tel- Fax)

Sd/-Director

Details Specification of the Equipment/Instrument

I. For ICAR, Head quarter, Umiam

Sl. No.	Name of the Items	Specifications
		A. **Plant Breeding Division, Umiam**
1.	**Lyophilizer**	The system should be complete with stainless steel collector coil condenser with condenser temp of -84ºC or below. It should remove minimum of 4 liter of ice in 24 hrs and should have a condenser capacity of 4.5Liters or more before defrost. The system must be a mobile system in a cabinet shape to hold pump and traps. Stainless steel drying manifold to connect up to 12 flasks of different sizes coupled with adaptors/ valves. Stainless steel adopters to hold flask. Alarm system (Audible and visual) for Power failure, improper line voltage supply, Collector temp rise above-40ºC, service of vacuum pump etc. Double stage rotary vacuum pump with displacement capacity of 160L/min or more and ultimate vacuum of $1.3X10^{-4}$mBar or better. Pump must include vacuum oil (one liter extra), exhaust filter, oil filter and all necessary tubings (one set extra). Accessories for 3 tier tray drying, ampoule drying(35-40 ampoules t a time), sealing torch, micro centrifuge tube holder for around 20-25 nos tubes, and solvent trap should be well as other local make should also be quoted. All other accessories should be quoted in the optical. Any other essential accessories needed for the system should be mentioned properly and included with the system.
2.	**BOD Incubator**	• Capacity —250 litres • Inner Chamber— Stainless steel • Temperature Range —5- 50 C. • Digital temperature control with safety settings and auto tuning, double door, supplied with automatic stabilizer.
3.	**Electronic Balance**	**Electronic Balance** Single pan with wind shields. Weighing range 0.1 mg to 200 g with reproducibility of 0.2 mg, internal calibration, workable at 220 to 240 volts AC.
4.	**Water Bath Shaker**	**Water Bath Shaker:** Temperature ambient to 95˚C, speed: 20 to 200 rpm, preferably magnetic drive, workable on220 to 230 volts AC, stainless steel platforms, cover to be supplied with the main apparatus with high tension springs to hold 8 No of 250 ml flasks, digital temperature controller cum indicator with Pt100 sensor having resolution of 0.1 C and accuracy of 0.5 C drive mechanism powered by permanent magnet geared DC motor.
5.	**Temperature Controller**	**Temperature Controller:** Microprocessor based programmable temperature controller with port for connecting at least one heater (2 KW and one 1.5t AC With digital display and si4table sensor. Range 15-50˚C accuracy ± 0.5 C.
6.	**Digital Weighing Balance**	Electronic weighing balance with platform, 25 kg capacity with 100 gram resolution, digital display, tare facility, calibration facility, both battery and maims (220V) operation.

7.	**Software**	i). Plant Breeding & Genetics, applied statistics, clustering advance biometrics modules (Window 7 operating system 64 bit) – single user license. ii). GGEBiplot with associated software (Window 7-64bit version).
8.	**Rice Husker/ Huller**	Rubber roll table top laboratory paddy sheller for 10g to 100gm capacity, separate outlets for husk and kernel, should be provided with adjustable timer, workable on 220 to 240 volts AC
9.	**HPLC columns**	C18 column: One with 25 cm long and one 12.5 cm long with 5u particle size; One PICOTAG column with amino acid analysis pack.
10.	**Melting Point Apparatus**	Melting point apparatus with melting point and boiling point determination in the same unit, simultaneous determination of three samples exact determination from room to 400◦ C, quick cooling down and heating up, accuracy of ±0.3◦C upto 100◦C, ±0.5◦C upto 250◦C and ±0.8◦C upto 400◦C, with big magnifying glass for easy viewing of the samples during determination, nine heating speeds to select, free of mercury thermometer and silicone oil to dispose, data recordable with RS-232, calibration possible with WHO standards, working memory of 10 methods, unit agreeable with the pharmacopoeia methodology, workable at 220 to 230 volts AC.
	B. Animal Nutrition Division, Umiam	
11.	**Lyophilizer**	The system should be complete with stainless steel collector coil condenser with condenser temp of -84ºC or below. It should remove minimum of 4 liter of ice in 24 hrs and should have a condenser capacity of 4.5Liters or more before defrost. The system must be a mobile system in a cabinet shape to hold pump and traps. Stainless steel drying manifold to connect up to 12 flasks of different sizes coupled with adaptors/ valves. Stainless steel adopters to hold flask. Alarm system (Audible and visual) for Power failure, improper line voltage supply, Collector temp rise above-40ºC, service of vacuum pump etc. Double stage rotary vacuum pump with displacement capacity of 160L/min or more and ultimate vacuum of $1.3X10^{-4}$mBar or better. Pump must include vacuum oil (one liter extra), exhaust filter, oil filter and all necessary tubings (one set extra). Accessories for 3 tier tray drying, ampoule drying(35-40 ampoules t a time), sealing torch, micro centrifuge tube holder for around 20-25 nos tubes, and solvent trap should be well as other local make should also be quoted. All other accessories should be quoted in the optical. Any other essential accessories needed for the system should be mentioned properly and included with the system.
12.	**UV-VIS Spectrophotometer**	Double beam high resolution UV-VIS spectrophotometer (operating at 220±20V AC) with capability of enzyme kinetics determination along with application softwares, data storage/handling, output devices and UPS. The spectrophotometer should have following of minimum specifications- Double beam optics, photodiode detectors, automatic lamp change with wavelength interchange, variable spectral bandwidth, 190-1100nm

		wavelength range with display and wavelength settings of 0.1nm increments, ±0.3nm wavelength accuracy with ±0.1 nm wavelength setting repeatability, 4000nm per minute or more scanning speed, absorbance range of -0.5 (or zero) to 3.999 and transmittance range of 0 to 300 (or 100)%, photometric accuracy of ±0.004 Abs at 1.0Abs and ±0.002 Abs at 0.5Abs, photometric repeatability of ±0.002 Abs at 1.0Abs and ±0.001 Abs at 0.5Abs, Data interval 0.2-5nm, latest PC configuration with laser color printer and suitable UPS with 30 minute backup, temperature controller &softwares for scanning, enzyme kinetic studies, multi-component quantitation, multi-wavelength photometric measurement, and auto validation check facility with sufficient spares and consumables for least 5 years of trouble free operation and extended warrantee or AMC.
C. Soil Science Division		
13.	**Total Carbon Analyzer (TOC)**	Fully PC Controlled High Performance, High temperature TOC Analyzer for analysis of Liquid, Solid Samples including the analysis of Total bonded Nitrogen. Measurement of TC, TIC, TOC, POC &TNB The instmment should have capability to distinguish between organically bound carbon and elemental (black) carbon by pyrolysis and temperature ramping. Operating Principle: System should have high Temperature catalytic oxidation. For enhanced lifespan, catalyst should never come in contact with sample. Measurement : by NEAR detector (preferably two detectors one of which should be highly sensitive). Measuring Range; 50 ppb to 40,000 ppm without dilution in liquid samples; 5 micro gms to 100 mg absolute C in solid samples; Furnace Temperature 900 deg C (in both liquid and solids mode) Sample Size: approx .1m1 in liquid mode and upto lg in Solid mode . Sample Intake : Through Software controlled Syringe in liquids mode Capable of automatic calibration out of only one stock solution (even without auto sampler) Should be able to handle salt content upto 35g/ltr Particle Size: Upto 500 microns in the liquid mode Carrier Gas: Synthetic Air Should be quoted with consumables for at-least 3000 sample analysis for liquid & 1000 samples for solid. System supplied with windows Based Software with real-time graphical display of peaks, online status display of all equipment parameters, etc. Should be supplied complete with Branded Computer and laser Printer Module for determination of TNb (Total Bonded Nitrogen) by EC detector. Detector gas : N. or He and H_2 Gas cylinders & regulators should be supply two nos. each items with safety certificate for refilling of gas cylinders. Supply should be complete with 5 KVA UPS with 1 hour backup. Warranty of Furnace should be 10 years & 1 year of main instrument with accessories, AMC of 3 years should also be quoted. Good after services & provisions for accessories supply.

D. Agronomy Division, Umiam

14.	**Automated Green House**	Features	Dimensions	Units
		Total Covered Area of Hi-Tech Greenhouses	The Total Covered Area=108 sq.m (12m x 9m) single chamber.	One
		Side height	3m	
		Centre height	4m.	
		Shape	A - frame or circular arc of appropriate slope/radius of curvature	

Specifications for Climate controlled green house

Sl. No.	**Features**	**Technical Specifications**	**UNITS/ AREA**
i)	**Infrastructure Details**	**1)**. All structural members including Rafters, Perlins, Trusses must be tubular or equivalent sections and hot dip galvanized designed to take a wind load upto 150 km/h. **2)** Tubular sections to be used for different Structural Member will be as below. a) Columns: 70 mm x 70 mm x3mm (tubular or equivalent) b) Trusses: Bottom cord 42 mm x 2mm; Truss Members 48mm x 48mm x 2mm, Bracing 32mm x 2mm, B-class GI steel tubular sections or equivalent; structural members will be fitted with GI plated nuts & bolts and clamps. c) Purlins: using specially designed profile 32 mm x 2mm thick. e) Profile member: 38mm, A profile. 3) Nuts and other metallic parts:Includes all the elements required for joining and water tightened components (such as fittings, clamps, screws and nuts GI plated against corrosion). 4) Two of the compartments of the greenhouse are to be furnished with tables (two tables of size 1.5m x 11.0m and two of size 1.5m x 10.0m in each compartment) of appropriate quality and height to keep pot-grown plants.	Complete set
ii)	**Cladding System**	Complete Roof and Sides Wall Covered with 8 mm thick polycarbonate (multi-walled) sheet (make equivalent high quality) with superior light transmission for greenhouse including front corridor.	One
iii)	**Lighting arrangement**	**Metal HalideLamps** Good quality ISI marked or better specifications; required number of spectra lamps to provide 1100 micromoles per m^2/sec covering whole range of photo synthetically active radiations and distributed uniformly across the entire green house space.	One complete set for each compartment
iv)	**Cooling / Heating System**	The green house should have climate control system to maintain temperature programmable in sinusoidal form in the range of 4^0C to 30^0C during winter and 15^0C to 45^0C during summer under **Umiam** conditions	One complete set for each compartment

v)	Control System	Micro processor based Programmable Control system with provision of sensing, regulating, recording and data logging of light, temperature, humidity and CO_2 conditions in real time. **A) LIGHT CONTROL:** 1) Programming and control: Independent level programming to setup day/night programming. 2) Lamps: Balanced spectrum for plant growth using fluorescent and incandescent lights to give 1100 micromoles/msq/s light intensity. **B) TEMPERATURE CONTROL:** 1) Temperature Range: As desired temp. range as mentioned above. 2) Temperature Control: +/- 0.5°C at control point. 3) Temperature Safety Limits: a) Programmable High and Low temperature limits tracking alarm, automatically following programmed set point, in sinusoidal form. b) Independent, high and low temperature limits for secondarysafety. c) Audible alarm for both safety devices and automatic chamber power off on reaching limits. **C) HUMIDITY CONTROL** 1) Range: Up to 95% RH. 2) Additive humidity Additive humidity should be siphon fed, atomizing spray nozzles. 3) Control: +/- 3% RH. 4) System: It should have wet bulb and dry bulb based sensor to directly measure % RH. The humidifying system should include de-ionized water production and supply from a single point source. The system should provide uniform humidity of required value in the green house and should not cause any deposition of water droplets on the floor or plant surface. D) There has to be proper air exchange system, so that proper air quality is maintained inside the green house. The system should be automatically operated based on CO_2 concentration inside the green house.	One complete set for each compartment
vi)	**Civil work**	**A) Foundation Wall for all sides of greenhouses** WIDE BASED 4.0 ft below earth's surface and 3.5ft above earth's surface, as kick-board 9" wide. Frame base block height 4'. Floor height 2' from existing field surface. **B) Pathways inside two of the green house compartments-** Each side: 0.5m wide footpath and middle path of 1.0m width lengthwise inside each chamber of the greenhouse. Height of the path should be 25cm above the ground surface. Flooring should be with pre cast inter locking tiles suitably laid on firm base as per standard. **C) Floor in two of the compartments and in the front corridor:** Kota stone flooring. **D) External Pathways surrounding the structure:**-1.0m wide of standard cement concrete mixture. **E) Drainage System:** Facility will have a good drainage system.	One complete set

		F) Water supply: Providing good quality four plastic tanks of 2000 Liters capacity each installed 2m above the ground on a platform. All the tanks should be inter-connected. They should have proper controlled inlet and outlets to supply water to the green house. A complete spread of conduit and PVC pipe distribution for irrigation in the plant growing area will be required.	
vii)	**Electrical fittings:**	**Electrical Wiring:-** The bid should cover electrical cabling and fitting using appropriate gauge cable (having copper wire) from the electric sub-station inside the IARI campus (approx 500 meters from the site). High quality MCBs needed in electrical fitting to avoid any damage due to short circuit. Proper concealing should be provided around the cables and wherever electrical fitting will be there.Good quality ISI marked copper wires, switches, MCBs, connectors. Each fixture should have its own **e**lectric line with MCB and will be underground in PVC pipe complete set with A grade work. All electrical fittings must have rating and make meeting the CPWD norms. The electrical wiring and control switches should be of standard makes.	One complete set

	E. Agricultural Engineering Division, Umiam	
15.	**Image processing Software**	Image Processing Software (Latest Version) with GIS capabilities-Image visualization and interactive processing; classification - using maximum likelihood, Isodata and other algorithms; Multispectral analysis-principal components analysis, scatter plotting, image arithmetic; Triangulation, 3D surfacing, Image warping and mosaicking; Orthorectification of Landsat, SPOT, IRS, ERS, JERS, MODIS and Radar sat data; Orthorectification of air photos with bundle adjustment; DEM, Terrain analysis, Image enhancement and filters; Vector edit with image backdrop; Map digitization; Grid, point and vector interpolation; 3D raster and vector drape, 3D Modeling and simulation; Vector editing, display and analysis. Including other modules, multi user license.
16.	**GIS Software**	Upgradation of existing Arc GIS VER.803 2 ltrs available version with desktop GIS, server GIS, embedded GIS & mobile GIS component. Multiuser license.
	F. Water Management Division, Umiam	
17.	**Precision Weighing Lysimeter**	The tank be fabricated of mild steel sheet 3mm thick reinforced by angle irons of section 37x37x6 mm along all edges on the inside Addition reinforcing angle of section 37x37x6 mm running diagonally shall be provided on the inside along each of the sides walls A mild steel plate of the size 1175x1175x6 mm with perforations of 10mm diameter spaced at interval of 100mm shall be provided at a height of 150mm above the bottom of the tank. The plate will be supported by (i) an angle iron frames of section 37x37x6mm along all its edges, and (ii) two steel strips of the size175x37x6mm placed at a distance of about 250mm from the sides of the tank and welded to the perforated sheet and

		reinforcing angle. The perforated sheet may also be welded all along the edges The tank shall be tapered as in the drawing i.e. its dimensions on the inside at the bottom and top does not exceed 1150x1150mm and 1130x1130mm respectively and there are no projections at or near the bottom or the top except The perpendicular height of the tank on the outside shall be 900mm Angle iron reinforcement of section 75x75x6mm length 275mm of which 200mm is welded on the outside to the tank walls shall be provided at the top of the tank at all four corners and a lifting ring provided on each angle iron to enable lifting of the tank, full of soil, through attachment of the hooks and chain of a lifting tackle. The total weight to be lifted will be 2000kilograms On one of the sides, the tank shall be provided with the hole at a height of 85mm from the bottom and a 12mm pipe extending 25mm from the side of tank shall be fitted in this opening and closed by plug.
G. Farm Manager, Umiam		
18.	**Tractor with trailer**	Indigenous or importer, 575 DI-NSTR tractor/45HP/4 cylinder/2523 CC, ¾ ton capacity 2 wheel trailer, Disk plough 1 No.

II. DBT TWINNING PROJECT, Animal Production Division, Umiam

Sl.No.	Name of the Items	Specifications
19.	**Advanced Trinocular Inverted Phase Contrast Microscope with Built in Camera Port and Digital Photography System**	Sturdy stand with built-in 12V 35W halogen light illumination. 5x nosepiece to accommodate five different objectives. Large Specimen stage 210 x 290 mm to accommodate different samples Viz., large tissue culture bottles, petri dishes and culture flasks. Built-in documentation port at the front for attaching SLR camera or Digital / CCD Camera systems to ensures space saving design and easy access to the work area of the stage. Universal mounting frame suitable for holding specimen slide and petri dishes of dia. 35-60mm should be available as an option. Conversion filter 3200-5500 K for photomicrography and green filter for phase contrast. Objectives suitable for phase contrast and bright field. Plan Achromat Objectives, preferably Zeiss optics, other glass optics may also be quoted, A – Plan 5x / 0.12, "A-Plan" 10x/0.25 Ph 1, LD "A-Plan" 20x/0.30 Ph 1 and optionally LD "A-Plan" 40x/0.50 Ph 2 with XY movement of Specimen Stage. Universal Condenser for bright field and phase contrast. This Condenser shall have a comfortable working distance of 53mm to make the Microscope upgradable for IVF and Micromanipulation work. The Microscope should have provision to up-grade to Fluorescence, DIC (preferably Plas DIC) and Micromanipulation and Image Analysis DIC / PlasDIC and Fluorescence Attachment should be quoted optionally Digital Photography system with software to download the images in Computer. Biotherm stage CCTV adaptor facility

20.	**ETO Sterilizer machine.(Manual) Gas sterilizer (Ethylene oxide) With catridge**	Rectangular S.S. chamber. **12" x 12" x 24"**Thermostatically controlled heating element to ensure uniform heating of the chamber at 50 degree centigrade. This chamber is mounted on a ¼" HP rotary vacuum pump and enclosed in M.S. cabinet. A temperature meter, compound guage, switches, pilot lamps and provided on the front panel- in addition to the four valv es which can regular evacuation, feeding of gas, degassing and fresh air inlet. **STANDARD FREOSTER (CARTRIDGE MODEL)** **b. CARTRIDGE DISPENSOR** **Made up of stainless steel, is a part of each sterilizer package and is required to puncture the cartridge to dispense the gas into the chamber.** Warm Cycle at 50 degree C. to 55 degree C Built in Aeration facility provided 2 different sensors for temperature
21.	**Embryo Freezer**	**Dimensions of freezer** Overall height (mm): 370, Width (mm): 550 Depth (mm): 335 Weight (kg): 20 **Dimensions of freezing cabinet** Overall height (mm): 35 Width (mm): 210 Depth (mm): 120 **Freezing capacity**-- Straws (0.25 ml): 20 **Temperature range** Between +20ºC and -196ºC inclusive Cooling speed between SP1 and SP2 From 0.1 to 5ºC/minute **Electricity supply** 220 V single phase Can be connected to a 12 Volt battery **Electricity consumption**: 150 Watts **Alarms**: 2 audible alarms available for SP1 and SP2 **Temperature sensor**: Alumel chromium thermocouple **Filling**: AGIL stainless steel Dewar flask Polystyrene tipper **Accessory**: Thermal inductor (seeding bar)
22.	**PCR Machine**	➢ Sample capacity -96 x 0.2 ml tube (in single or dual block format) ➢ Sample block should be of silver or gold plated silver ➢ Sample block should be calibrated to NIST standard. ➢ Temperature range - 4 - 99 ºC. ➢ Temperature accuracy - ±0.2-0.3 ºC ➢ High Ramp rate of 5-6 ºC ➢ Heating and cooling via Peltier elements ➢ Should have heated lid and auto restart ➢ Should be capable of storing up to 100 programs ➢ Networking and robotic upgradable ➢ Must be licensed and authorized for PCR ➢ 2-3 years warranty

		➢ Accessory: A horizontal gel electrophoresis unit with power pack, casting tray of 20x 25 cm, combs etc.

III. DBT -Trancelis, Animal Health Division, Umiam

Sl.No.	Name of the Items	Specifications
18.	Thermal Cycler (PCR Machine)	• Gradient • Sample capacity of 96 X 0.2m1 PCR tubes or 1 PCR Plate measuring 8 X 12 • Thelma' Sample protection for minimized evaporation and high specincity • Gradient range from 1°C to 20°C Gradient • Gradient Temperature range from 30°C to 99°C • Lid temperature range from 37°C to 110°C • Control Accuracy of t 0.2°C • Temperature control speed approx. 4°C/s (heating) • Temperature control speed approx. 3°C/s (cooling) • Fast heating and cooling rates • Gradient blocks with steady slope technology • Controlled with Control Panel or PC software • USB / Serial Printer and CAN-bus interfaces
19.	Electrophoresis Unit	• Wide Mini-Sub Cell GT Cell and PowerPac • Basic Power Supply with digital display of parameters • Wide Horizontal Electrophoresis Systems, includes 15- and 20-wells combs, gel caster, 15 X 10 cm UV-transparent tray • Safety cover with attached retractable sheathed power cords. • Power supply leads with colour code for easy determination of Anode and Cathode • Any other features may also be quoted
20.	Minus 20° Deep Freezer	• Horizontal Deep Freezer, Capacity 400-500 litres, -20°C • Transparent and sliding top cover. • Digital display of temperature parameter