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### KERALA AGRICULTURAL UNIVERSITY

College of Agriculture, Padannakkad P.O., Kasargod Dist. Pin: 671314, Kerala, India.

G1-2052/16 Date: 08.03.2017

### LIMITED TENDER NOTICE

Sealed competitive tenders are invited for the supply of following equipments at College of Agriculture, Padannakkad as per the specifications, terms and conditions detailed below:

The last date and time for the submission of the tender will be at 2.00 pm on 18-03-2017 at the following address:

### The Associate Dean

College of Agriculture, Padannakkad, Kasaragod, Kerala, India Pin Code: 671314

Email: coapad@kau.in

Date & time of opening of tender: 18.03.2017 2:30 p.m.

SI. NO	ITEMS	Specifications	QUANTITY
1	Image Analyzer software, research microscope and stereomicroscopes having attached cameras and with lap tops and accessories	Attached separately (Annexure I)	1 each
2	Research microscope with micrometer attached	Attached separately	2
3	Compound Microscopes (Binocular)	Attached separately	5 (4+1)
4	Compound Microscopes (Monocular)	Attached separately	10
5	Autoclave	Attached separately	1
6	Deep Freezer	Attached separately	1
7	Incubator Shaker	Attached separately	1
6	Laminar Airflow Cabinet	Attached separately	2 (1+1)
8	Precision Weighing Balance (0.001 g)	Attached separately	1
9	Hot Air Oven	Attached separately	1
10	Centrifuge	Attached separately	1
11	Weighing Balance (0.01 g)	Attached separately	2
12	Incubator	Attached separately	1
13	pH meter	Attached separately	1
14	EC meter	Attached separately	1

#### **Cost of Tender Forms**

Particulars	Cost (Rs.)
Supplies costing above Rs. 1,00,000/- to Rs. 10 lakh	0.2 % of the quoted amount rounded to the nearest multiple of Rs.100/-subject to a minimum of Rs.400/- and maximum of Rs.1500/- +VAT@5% (extra)
Supplies costing above Rs. 10 lakh	0.15 % of the quoted amount rounded to the nearest multiple of Rs.100/-subject to a maximum of Rs.25000/- +VAT@5% (extra)

#### **Terms and Conditions**

- 1. Tender should be submitted in the prescribed forms which can be downloaded from the website www.kau.edu/tenders.
- 2. The envelope containing the tender should be superscripted as "Tender for supply of equipment's at Dept. of Plant Pathology and Microbiology".
- 3. Each tender should be accompanied by tender fee, VAT, and earnest money deposit (EMD) of 1 % of the cost of quoted items. (subject to a minimum of Rs. 1500/-) by way of three crossed demand drafts separately for tender fee, VAT and EMD drawn in favour of Associate Dean, College of Agriculture, Padannakkad, Kasaragod payable at SBT, Nileswar (Branch code SBT0000675). Late and incomplete tenders and tender without EMD, tender fee and agreement will not be accepted. Firms who are exempted from the payment of EMD should furnish copy of the currently valid certificates from Stores Purchase Department, Government of Kerala.
- 4. Selected firms will have to furnish a security deposit of 5% of the order value and execute another agreement in Kerala stamp paper worth Rs. 100/-. Security deposit will be accepted in the form of DD, Term Deposit Receipt or Bank Guarantee favoring Associate Dean, College of Agriculture, Padannakkad, Kasaragod (SBT, Nileswar, Branch code SBT0000675). The format of the agreement can be downloaded from KAU site. The cost of the item, tax and other charges should be separately stated for each item.
- **5.** Detailed drawings/Leaflets/brochures/catalogues of the structures describing its features, applications, specifications etc. should be provided along with tender.
- **6.** Details of warranty offered should be clearly stated in the tender. Details of maintenance service contract offered after expiry of normal warranty and after-sales service facilities available should be indicated. The details of the nearest service center and response time should be specified.
- 7. We are exempted (registered with DSIR) from the payment of excise duty and customs's duty (in excess of the 5 % basic duty as applicable) for our procurements and hence prices quoted should be exclusive of these. We shall provide the necessary forms and certificates as and when required.
- **8.** If any unexpected holiday occurs on the date of opening of tender, the tender will be opened at the same time on the next working day.
- **9.** Period of firmness of the quoted prices should be clearly stated in the offer.
- **10.** The undersigned reserves the authority to accept or reject any or all of the offers for any particular item without assigning any reason whatsoever.
- 11. Tenders received late or incomplete in any respect will be summarily rejected without notice and the decision of the undersigned on such matters will be final.
- 12. The items are to be provided at the College of Agriculture, Padannakkad, Kasaragod and their working has to be demonstrated satisfactorily.

- 13. The item should be delivered at the site and rate quoted for each items should be inclusive of all charges, taxes if any, and should be valid for one year w. e. f. the date of issue of supply order.
- **14.** The work should be completed within one month of work order.
- 15. All conditions of Kerala government tenders are applicable in this case also. All the rules/ regulations of departmental purchase of Govt. of Kerala as provided in the Store Purchase Manual Revised Edition 2013, G.O (P) No.3/2013/SPD, dated 21-06-2013, available in the website <a href="https://www.kerala.gov.in/docs/manuals/RevisedSPmanual.pdf">www.kerala.gov.in/docs/manuals/RevisedSPmanual.pdf</a> will be applicable. Further information can be availed from the web site <a href="https://www.kau.in/tenders">https://www.kau.in/tenders</a>.
- **16.** Bank account, credentials, (Name & Branch, Account No. and IFSC code) to be furnished in the invoice for effecting payment.

(By the order of the Associate Dean)

Sd/-

ADMINISTRATIVE OFFICER

### **Annexure - I Specifications**

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SI. NO	ITEMS	Specifications
1	Image Analyzer	Trinocular Microscope for transmitted bright field with Digital
	softwares,	Microscopy Camera attachment and image acquisition system
	research	
	microscope and stereomicroscopes having attached	Ergonomically designed stand preferably with international standard certification.
		Rugged and sturdy stand.
	cameras and with	It should have low positioned co-axial coarse and fine focus knobs
	lap tops and	Integrated Carrying Handle at the back.
	accessories	The stand should have a built-in stabilized power supply for
		12V/50w illuminator with mains connection to 110-240V, 50/60Hz.
		Special skin-friendly material coated on all operating elements
		30deg. Trinocular tube. Interpapillary adjustment from 55 to 75 mm.
		Sidentopf designed Binocular tube with swiveling for comfortable
		two position height observations.
		Wide field 10x/20mmFOV mm or more with focusable front lens
with provision to insert graticules incl		with provision to insert graticules including rubber eyecups.
		Back tilted Quintuple revolving nosepiece with precision click stops
to accommodate 5 objectives.		to accommodate 5 objectives.
		Infinity corrected optical system including objectives. Plan
		Achromatic objectives for Bright field 5X, 10X, 40x, 100x oil & 100x/0.8 dry objective should be quoted.
		All the objectives should be of Anti-fungal treated. Abbe Condenser
		0.9/1.25 N.A.
		Dual layered mechanical stage with hardcore anodized surface with
		210x145mm with XY movement of 75x30mm with low positioned
		co-axial X Y movement knobs with friction adjustment mechanism.
		High power 12V/35W Halogen illumination for high demanding
		illumination needs.
		The microscope should be possible to convert in to a 3W LED
		illumination for long life routine use by simple change of the lamp
		socket.
		Microscope should be possible to upgrade for phase contrast,
		Fluorescence and teaching device with additional 2 co-observers.

### **Digital Microscopy camera**

Should be supplied with 5MP camera

Should Have USB 3.0 interface for fast processing

Exposure time 100µS to 2S.

Analysis Software should be supplied with camera.

Should Supplied suitable computer for Image analysis.

0.5 X c mount should have supplied with camera

<u>Computer attachment to view live image and for data storage</u> Microscope ,camera and software from the same manufacturer

## Trinocular Stereo Zoom Microscope with 5MP camera with lap top

Should be Apochromatic Greenough system

zoom Ratio 8:1

Magnification Range 6.3x to 50x

Working distance 92 mm

Viewing angle 35° with adjustable interocular distance 55...75 mm

Eye Piece 10x/23FOV

Spot light LED Illumination

Should have Reflected and Transmitted illumination

Microscope stand should have Transmitted base with switch for

Bright Field and Dark field

Should be supplied with 5MP camera

Should Have USB3 interface for fast processing

Exposure time 100µS to 2S.

Should Supplied with Suitable C mount.

Analysis Software should be supplied with camera.

Should Supplied suitable computer for Image analysis.

# Research microscope with micrometer attached (2 No.)

### <u>Trinocular Research Microscope (upgradeable</u> for camera attachment)

- \* Ergonomically designed rugged stand for longtime comfortable usage. Carrying handle should be built-into the stand.
- \* Microscope should be with infinity optics with anti-fungus treatment.
- \* Built-in Transmitted light illumination with 6V 30W halogen lamp with easy lamp changing module and should have provision to replace the same with white light long lasting LED illumination by the user.
- \* External main power supply with electronic main control from 110V to 240V.
- \* Back tilted Quadruple revolving nosepiece with precision click stops confirming paracentric field of view for all objectives.
- \* High contrast Fully Plan Achromatic objectives, 4x/0.10, 10x/0.25, 40x/0.65 and 100x/1.25 oil. 40x and 100x front optics are spring loaded.
- ABBE Condenser with numerical aperture 1.25 with built-in

		<ul> <li>* Slide Stage should have ball bearing specimen holder and should have right handed coaxial X and Y movement. The travelling range of the stage should be 75 x 30mm with vernier marking. The stage focus movement range should be 15mm or more with coaxial coarse and fine focus knobs on either side of the stand. The minimum step size of the fine focus should be 2 micron or better. Focus stop mechanism to protect slide damage should be available.</li> <li>* The Trinocular tube should have a beam splitting ratio of 50% for observation and 50% for documentation.</li> <li>* Paired Eyepieces with 10x/20mm FOV.</li> <li>* Full Koehler illumination setting with focusable and centering condenser. Microscope should have a variable field diaphragm.</li> <li>There should be attached micrometer device along with the acular.</li> </ul>
3	Compound	ocular.  Fully Anti-fungus treated and Sealed Binocular Microscope
3	Microscopes (binocular) - 5 No.	Illumination Halogen Lamp 6V 20W, with SMPS Power supply Board Quadruple revolving nosepiece Eyepiece 10X wide field, objectives iNEA 4X, 10X, 40X, 100X (spring, oil immersion), coaxial mechanical stage, aspherical condenser in rack & pinion, Plug type blue filter. Built in rotatable iris diagram Microscope Body with window in the arm to view objectives in use from rear side. Co axial Coarse & Fine focusing System. Focus tension adjustment ring Complete set in thermocole packing
		Optional power cable : 5 M long
4	Compound Microscopes (Monocular)	<ul> <li>➤ Stand: Sturdy stand with anti rust materials. Extended base</li> <li>➤ Viewing Bodies: Monocular tube, 45° inclined, 360° rotatable</li> <li>➤ Eyepieces: Integrated Wide Field eyepiece WF 10x/18mm, with foldable eye guard, anti-fungus coating - locked in ocular tube.</li> <li>➤ Nosepiece: Quadruple nosepiece (Ball bearing type)</li> <li>➤ Objectives: DIN Semi-Plan Achromatic objectives10x, 40x (spring loaded), 100x Oil (spring loaded) anti-fungus coating</li> <li>➤ Mechanical Stage: Mechanical stage with Co-axial drive, highly smooth on Ball Slides, Stainless Steel</li> <li>➤ Holders for Slide Movement X-Y = 75mm x 50mm</li> <li>➤ Condenser: Sub-stage Abbe condenser NA 1.25 with aspheric lens. Iris diaphragm with snap-in blue filter. Rack and pinion movements on metal guides.</li> <li>➤ Focusing: Co-axial coarse and fine focusing on ball drive system for smooth movement.</li> <li>Illumination: Halogen 6V-20W lamp with variable illumination control. Up to 2,000 hours of Halogen lamp life./LED Lamp more preferable</li> </ul>
5	Autoclave (1 No.)	Vertical, Fully Automatic, 40x60cm (18x28") / 75 Ltr Fully Automatic Autoclave. With microprocessor controller. Unique single lever lock for lid with single hand opening. Conformance to National & International Standards.
		Internal Chamber and lid along with all wetted parts fabricated from

		Stainless Steel.  Single lever pronged closure system with Silicone Gasket External vertical panels of MS duly heat cured epoxy coated. Easy lift and closing of the lid by assisted support. Castors for ease of movement. Flexible sensor enabling in-situ control and monitoring of cycles. Pressure interlock on door. Audio & Visual alarms and cut off system for sensor open and low water level MCB for electrical safety. Independent over temperature safety cut out.
6	Laminar Airflow Cabinet (2 No.)	Laminar Air Flow – Horizontal Type, with static pressure manometer, Transparent front door, Built in UV light and Gas cock and steel TOP  Designed to meet the requirement as per US Federal standard 209E, Providing particle free air to meet class 100 conditions, with work zone. This complete package unit is provided to give clean air to any laboratory. Useful where any hyper critical work has to be performed within minimum contamination as they assure 99.97% removal of air bone particles as 0.3 microns in the work area. The basic elements are pre-filters, heavy duty blower assembly, HEPA filter fresh air is drawn through the pre-filter and passes to absolute heap filter having efficiency rating as high as 99.99% with cold DOP and 99.97% with hot DOP, thus retaining all airborne particle of size 0.3 micron and larger. Double filtered air blows in Laminar Flow through the work area at a velocity of 90 ft/Min +20%  Basic materials is thick board wood front, back, top and exterior surface are convered with formica and interior surface are epoxy painted. Work top is made of mica, and side panels are made of 6mm thick acrylic transparent framed in anodized aluminium frame. Blowers are fitted with motor operates with minimum noise and vibration, to work on 220 /230V 50Hz AC supply  Size: 3'x 2' x 2'(90cm x 60cm x 60cm)
7	Bench-top Incubator Shaker (1 No.)	Shaking Speed Range – 20-300 rpm  Amplitude – 20 mm  Temperature Range – 4-50 °C+0.5 °C  Timer Range – 1 hour ~ 99h: 59 min  Platform size (mm) – 450X450  Maximum Shaking Capacity (No of flasks X Volume) – 4X2000 ml,  8X1000 ml, 11X500 ml, 12X250 ml, 28X100 ml, 42X50 ml  Load in tray - ≤ 10 kg  Power Cosumption – 1100 W  Recommended Voltage Stabilizer – VS 02

		<ul> <li>Stainless-steel chamber and platform easy to clean</li> </ul>		
		Transparent plastic door		
		<ul> <li>Microprocessor controller with large LCD screen for temperature and shaking speed with timing function</li> </ul>		
		Self-check function easy to identify problems		
		Smooth start and stop system prevents liquid		
		spillage		
		<ul> <li>Auto-controller of fan speed to prevent damage to the samples</li> </ul>		
		<ul> <li>Safety door switch, auto pause operation when it is opened</li> </ul>		
8	Precision	Electronic Balance		
	weighing balance	Type - Top Pan with Wind breaker Protective Cover		
	(0.001  g)	Calibration - External		
		Minimum Display001g Capacity - 220g		
		Pan Size - 100 x 100 mm Square Pan		
		Repeatability $\leq 0.001$ g		
		Linearity $-\pm 0.002g$		
		Shimadzu		
		Response Time - 1 - 1.2 seconds		
		Working Temperature - 5-40 C		
		Display type - LCD Weight - Less than 2.3 KG		
		Piece Counting function available along with Key Touch for Unit		
		Conversion		
9	Hot air oven	600X450x450 cm, with 3 shelves, Digital Temperature Controller cum Indicator, Microprocessor based Programmable Digital Temperature Controller (Imported), Forced Air Circulation Fan, Digital Timer, Double walled construction. Inner SS & Outer M.S. powder coated. Temperature Ranges from 50 to 250°C + 1°C. Temperature controlled by Capillary type thermostat. Glass wool Insulation for the chambers and doors. Suitable to operate on single Phase, 230 volts, 50 Hz · G.I. made wire mesh shelves with adjustable runners, Nichrome made long lasting heating elements. Front opening door, Vertical model		
10	Research	Research Centrifuge, Rpm:14100		
	Centrifuge	Size:400X500X455		
		Capacity: 6X25 ml		
11	BOD Incubator	Angular rotor, <b>Supply: 220-240 Volts 50 Hz Single Phase.</b> B.O.D incubator with 1 KVA stabilizer		
11	BOD Incubator	Temp. Range 100C to 600C with an accuracy ± 10C. Relative		
		Humidity Range 35%RH to 85%RH with an accuracy ± 3%RH		
		Uniformity.		
		• Digitally set, Temperature and Humidity Controller with		
		direct digital read out in temperature and percentage Rh.		
12	Deep Freezer	(Dual Power Operated) Portable Refrigerator		
		State of Art Technology, Highly Suitable for Ambulance, Blood		
		Donation Camps, Vaccination Camps, Storing Portable Medical Kits,		
		temporary Storage of Bio-Samples,		
		Blood Bags, Plasma Samples, etc		

		<ul> <li>Net Capacity: 82 Liters</li> <li>Temperature: -18°C to +10°C can be either used as Freezer or Refrigerator</li> <li>Refrigerant: R134a, totally CFC free</li> <li>Insulation: C-pentane, totally CFC free</li> <li>Input Power: AC55W,DC42W</li> <li>Power Supply DC: 12V24V(automatic changeover) /AC: 240V/50Hz</li> <li>Internal size W600 x D350 x H448 mm</li> <li>External size W802 x D485 x H568 mm</li> <li>Weight 25kg/net, 27.5kg/gross</li> </ul>			
13	pH meter	pH Range	0.00 to 14.00 pH		
		Resolution & Accuracy	$0.01~{ m pH}  /  \pm 0.01~{ m pH}$		
		No. of pH Calibration Poi	ints Up to 3 points		
		pH Buffer Options	USA- 4.01,7.00,10.01		
		pri Burier Options	NIST- 4.01,6.86,9.18		
		Temperature Compensation	on Automatic (optional) / Manual (0 to 100 °C)		
		Temperature Range 0 to 100 °C			
		Temp Resolution / Accuracy	$0.1~^{\circ}\text{C}$ / $\pm$ $0.3~^{\circ}\text{C}$		
		pH Slope and Offset Display	Yes		
		Electrode	Included general purpose glass-body refillable indigenous pH combination electrode IND786, BNC connector, 1m cable length indigenous electrode stand and power adapter.		

14	EC meter			I	
	(Conductivity	Measuring	Parameter	Conductivity/TDS	
	meter)	measaning	T GI GIII C C C	conditionity, 153	
	meter)	High	lights	Large LCD Display	
			Range	0.01 to 200.0 mS/cm	
			Resolution	0.01 µS; 0.1 µS; 1 µS; 0.01 mS; 0.1 mS*	
		Conductivity	Accuracy	±1% Full scale	
			Calibration Points	Up to 5	
			Range	0.01 to 100 ppt @0.5 TDS factor (to 200 ppt @ 1.0 TDS factor)	
		2.275475	Resolution	0.01 ppm; 0.1 ppm; 1 ppm; 0.01 ppt; 0.1 ppt #	
		TDS	Accuracy	±1% Full Scale + 1 digit	
			Calibration Points	Up to 5	
			Range	0.0 to 100.0 °C / 32.0 to 212.0 °F	
			Resolution	0.1 °C / 0.1 °F	
		Temperature	Accuracy	±0.5 °C / ±0.9 °F	
		500 St. 60 St. 50	Compensation	ATC/MTC	
			Cell Constant	0.1/1.0/10.0	
			Display	Custom Dual Display LCD (5.6 x 7.5 cm)	
			Memory	100 Data sets	
		\$	Electrode Arm	Yes, Built-in	
		Meter Features	Temperature Coefficient	0.00 to 10.00%	
			Temperature Normalization	15 TO 30 °C	
		1	Power	9 V DC Adapter, 500 mA	
			Requirements	(220 VAC)	
		Standard Supply	Electrode	Included, ultem body ECCONSEN9501D, cell constant 1.0, 1 m cable	
		Dimensions (LxWxH);	Meter	17.5 x 15.5 x 6.9 cm ; 650 g	
		Weight	Boxed	30.8 x 23.5 x 12.4 cm; 1800 g	
		* 1 mS = 1000 µ	uS/cm, # 1 ppt = 1	000 ppm	
15	Precision	0.01 g			
	Weighing Balance	Max: 220 g			
	(0.01 g)	220 8			
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