SEALED OPEN GLOBAL TENDER (IV-225-S&P/2015-16/2141/SOGT/SE/ILS dated 05.10.2015) **SPECIFICATION**

Total -----Pages

Supply, Installation & Satisfactory Demonstration" of the following scientific equipments/items for its laboratory

SI.No	Name of the Item	
1	Inverted Research Fluorescence Microscope with Cooled CCD Camera along with	Quantity
	The state of the s	1 unit
2	Airflow Biological Safety Cabinet	
3	Cell Culture CO ₂ Incubator	1 no.
4	High Speed Table Top Refrigerated Centrifuge	2nos.
5	Electrophoresis Bio-analyzer	1no.
6	Veterinary Hematology Analyzer	1 no.
7	X-ray Irradiator for Small Animal and Cells/Tissue	1 no.
8	Individually Ventilated Caging Systems (IVC)	1 no.
9	Table Top Centrifuge (Refrigerated)	1 Unit
10	Digital Dual Chamber Unstirred Water Bath	4 nos.
11	Micro Volume Spectrophotometer	2 nos.
	- Folding Spectrophiotometer	2 nos.

SLI

Inverted research fluorescence microscope with cooled CCD camera along with image processing workstation

QTY: One (1)

All the items should be given in the main quote and not as an optional item, if not

Inverted Research Fluorescence Microscope

- 1. Fully motorized research grade inverted microscope platform for cell imaging with Fluorescence and DIC.
- Dedicated, built in programmable TFT touch screen for user specific microscope operation with programmable key rings facility for customized operations.
- 3. Inbuilt motorized magnifications; 1.6x and 2.5X
- 4. Built in Z motorized with 10 -15 nm of Z step resolution.
- 5. Objective specific Z travelling speed optimization, minimum of 5 steps with oil stop functions for oil and dry objectives.
- 6. Mechanical stage with universal holders for slides, culture dishes, flasks, 96 plate well
- Light and contrast manager with DIC and Ph accessories as mentioned for the
- Illuminations:
- 1. 12V/100W halogen illumination for transmitted light
 2. 100W pre centered/ self-aligned, Mercury/Metal Halide or better illumination for fluorescence should be offered.
- Motorized 6 position DIC nosepiece, universal motorized condenser NA 0.55, 6 position, WD 26mm or better.
- 10. 6 position fluorescence turret for accommodating fluorescent filters with a quick movement < 200ms for camera based imaging.

 11. Fluorescence beam path should be corrected appochromatically.

 12. High resolution semi plan apo objectives of 10x/0.25 BF, LD 20x/0.50 Ph with correction, 40x /0.75 DIC and 63X /1.4 oil DIC immersion.

- 13. Band pass fluorescent filters as mentioned for
 - a. DAPI
 - b. GFP/FITC
 - c. Orange
 - Rhodamine /Cy3 filters should be offered.
- 14. Spare bulb should be provided with the instrument and included in the main quote.

High Resolution Monochrome Cooled CCD camera:

- Peltier cooled, highly sensitive monochrome CCD camera for fluorescence imaging.
- 3 mega pixel resolution with pixel size 4.54 μm x 4.54 μm or 1.4 mega pixel resolution with pixel size 6.54 μm.
 3. Max full well capacity (typical) 15.000 e- with dynamic range (typical) 1:2500 (68 dB)
- or higher)
- Digitization 14 Bit /pixel
- 5. Minimum of 20-38fps @ full resolution

Value Planse Officer

Option Planse Officer

(An Autonomous Institute of India)

(An Autonomous Institute of India) INSTITUTE OF LIFE SCIENCES

Advance image analysis system with computer configuration

Reputed brand computer/laptop with standard screen size, intel core I-7 processor, 8GB RAM, 1TB HDD (upgradeable to 2TB), graphic card of 2GB, Speed 2.4 GHz, with the below mentioned softwares.

Softwares

- 1. Single window user customized GUI pan software for microscope control and
- Acquisition facility with Multichannel imaging with upto 8 channels
- Continuous time lapse/movie acquisitions.
- 4. Smart set up options for automated light path settings for multichannel imaging.
- 5. Z stack imaging with automated Z stack settings and configurations for Z stack imaging.
- 6. Automatic exposure control.
- Reusable image parameters.
- ROI and crop functionality.
- 9. Maximum Intensity projections or Extended Depth of focus
- 10. Auto save, user specific settings etc.
- 11. Basic image analysis features such as measurement, profiling, etc.
- 12. Various measurement tools like line, circle, freehand, rectangle, counting etc.
- 13. Graphical representations of analytical or statistical data.
- 14. Multiple image alignment for stitching of images.
- 15. Extended focal imaging for merge small z stack images and all in focus.
- 16. 2D/3D structure view and time lapse function.
- 17. Co localization software
- 18. Software up gradation facility
- 19. DIC- image overlay un-mixing for multi color fluorochrome, image merging and
- 20. Microscope should be field upgradable for confocal, live cell incubations, TIRF etc.

Complete warranty for two years.

All components like microscope, camera, and software should preferably be from

Optional: 25x/0.8 Live cell specific Multi immersion (Oil/Glycerol/water) objective.

CL 2 Airflow Biological Safety Cabinet

= QTY: One (1)

- 1. The biological safety cabinet should be of Class II/Type-B, designed in compliance with international standards. Height-approximately 4 ft.
- It should have dual blower for independent control for inflow & down flow velocities.
- 3. The motor must automatically adjust the airflow speed without the use of a damper to ensure continuous safe working conditions, even without maintenance adjustments.
- 4. The interior dimensions preferably should be around: (wxhxd) 1200x780x465 mm.
- 5. Air flow direction: Vertical laminar flow & air intake across front opening.
- 6. Filter: High performance particle air filter (HEPA), filtering efficiency should be preferably in and around 99.995% at 0.3 micron particle size.
- 7. Pressure sensor should be in-built for exact airflow measurement for balancing air
- 8. It should have independent supply, exhaust blowers and automate balancing of down flow and inflow/exhaust velocity to ensure continuous safe working conditions.
- 9. Control panel and performance monitor displays inflow/ downflow velocities, hours of use etc. to verify proper cabinet operation. The microprocessor controller must be located on a slanted front panel so it is easy to see from a seated working position in front of the cabinet.
- 10. Approximately 30% of the air volume is exhausted as sterile air back into the

environment and approximately 70% of the air is recirculated inside the work area. DEPT. of Biotechnology, Govt. of India)
INSTITUTE OF LIFE SCIENCES Bhubaneswar-751 023, INDIA

cont. P/3

- 11. The UV light must be quoted which should be programmable to shut off automatically. The settings must allow the user to program the timer from 30 min to 24 hours in 30 min increments. The UV light should go off if the front window is opened upto a height of 6 inches or less.
- 12. The cabinet noise level must be less than 55-68 dbA.
- 13. Equipped with audible alarm system should the front glass is above the permissible protection limit.
- 14. The microprocessor must display the inflow and downflow air velocities in real-time on an LED display so that the user knows whether or not the cabinet is working under safe operating conditions. The microprocessor must display the number of hours of use on the HEPA filters to ensure that the user knows when to replace the HEPA filters to achieve safe working conditions.
- 15. The drain pan beneath the work surface must be negatively pressurized to ensure that any contaminants are quickly trapped and pushed into the HEPA filters.
- 16. Arm rest should be provided for operator's comfort without disturbing the air flow.
- 17. The work area should be illuminated with switchable fluorescent lamp of lighting power of > 900 lux.
- 18. The inside cabinet should have 2-3 internal electrical outlets.
- 19. It should have either 4 pieces stainless steel work tray or the cabinet work zone shall be all 16 gauge stainless steel solid plate and reinforced with stainless steel channels to minimize vibration.
- 20. The system should be provided with integrated floor stand.
- 21. Electrical supply available: 230V A.C, 50 Hz.

Warranty

Complete warranty for two years.

Cell Culture CO2 Incubator

QTY: Two (2)

- 1. One chamber CO_2 incubator with work chamber volume approx. 140-150 liters.
- 2. Direct heating & air jacketed heating system with temperature control by microprocessor.
- 3. Temp. range from ambient +3 ° C to +55 ° C
- 4. Temp. deviation with respect to time is + 0.1K.
- 5. CO_2 range 0 to 20% and CO_2 accuracy \pm 0,1% by volume.
- 6. Relative humidity ambient to > 90%. Pan-less integral water reservoir system for rapid recovery of humidity.
- 7. Microprocessor based CO₂ control. Sealed two channel thermal conductivity CO₂ detector with platinum thermistor providing reliable accurate CO2 measurement and control and long
- 8. Unique auto-start function facilitating easy installation and start-up, with automatic calibration and system optimization.
- 9. Fast recovery time for temperature, CO2 and humidity should be available for good culture
- 10. System should have built-in automatic decontamination facility to remove bacteria, fungi, spores, mycoplasma etc. without removing sensor, fan or any other fitting. The system should employ automatic decontamination routine at moist heat of 90° C
- 11. At least 3 nos. stainless steel electropolished perforated shelves should be supplied.
- 12. The machine should be supplied with access port to allow any cable, plug or tubing to be easily inserted into or out of the chamber.
- 13. Interior chamber should be made of corrosion resistant stainless steel with electropolished finish to have highest quality of inner surface. Heated outer door and focused cold sink to provide condensation protection.
- 14. Independent electronic over temperature protection with separate sensor should be available for sample protection.
- 15. The system should have large digital display for both temperature & CO₂ simultaneously.
- 16. System should have one main door and one glass doors.
- 17. Suitable for 230V, 50Hz operation.
- 18. Double stage CO₂ pressure regulator with stainless steel diaphragm should also be quoted.
- 19. Certified by some internationally accepted testing agency like CE.

Complete warranty for two years

Stor Autonomous Institute of the Dept. of Biotechnology, Govt. of India) INSTITUTE OF LIFE SCIENCES Bhubaneswar-751 023, INDIA

Cont.P/4

High Speed Table Top Refrigerated Centrifuge

QTY: One (1)

- 1. High speed table top refrigerated centrifuge with variable speed range from 300 rpm to 23,000 rpm or better (adjustable in increments of 10) and Max. RCF 50,000 x g or
- 2. Microprocessor controlled
- 3. Digital display for temp., speed, time, RCF, acc/dec profile & program
- 4. CFC free Refrigerant & insulation
- a. 6 x 94 ml or better F/A rotor with max. RCF equal to or higher than 25,000 x g at
- b. 24 x 1.5 ml or better F/A angle rotor with speed 23,000 rpm or higher & max. RCF 50,000 x g or higher at 4°C.
- c. Adapter for 0.2 ml PCR tube should be quoted.
- d. 8 x 50 ml F/A rotor with max. speed 15000 rpm & max. RCF 26,000 x g or higher. e. Adapter for 16 ml round bottom tube should be quoted.
- f. Microtitre plate rotor with 3,000 rpm at 4°C.
- 6. Temp. range: -19°C to +40°C or better,
- 7. Robust frequency controlled induction drive with maximum imbalance stability.
- 8. Imbalance recognition: Unique electronic imbalance recognition, optimally suited to every rotor, can detect imbalance even it occurs during the run due to tube breakage or liquid
- 9. Safety: Lidlock & interlock, over temp. protection for rotor, steel armoured rotor chamber, automatic rotor identification
- 10. Braking & acceleration curves: 9 deceleration / braking & 9 acceleration profiles
- 11. Acceleration & Braking time: Very fast, preferably acceleration to 50,000 x g in 30 secs.
- 13. Noise level: Less than 60 dB.
- 14. Run time: 0-9 hrs 59 mins, continuous operation.
- 17. Fixed Angle rotors should be autoclavable.

Warranty

Complete warranty for two years.

Electrophoresis Bio-analyzer

QTY: One (1)

The system should be an automated analyzer based on microfuidics, capable to run on chip electrophoresis as a part of quality control for Proteins, DNA, RNA and cell analysis.

- 1. Single platform for DNA, RNA, PROTEIN analysis, upgradable for cell analysis.
- 2. The software shall be able to detect components based on their fluorescence and translate them into gel like images and electropherograms.
- 3. System shall have RNA quality check option for total RNA, mRNA and small RNA data by some well-optimized documented algorithm with defined calculation.
- 4. The data of biochemical analysis should be in digital form for convenient analysis,
- 5. Color coded result flagging tool in the software shall be available
- 6. System shall come with various data-display options as gel view, electropherograms and
- 7. The system should be well referred in scientific publications
- 8. Upgradable with a provision to add flow cytometry set.
- 8. Manufacturer should be able to provide at least 50 chips and reagents required for each DNA, RNA and protein analysis.

Some kits should be provided with the instrument for optimization of the instrument.

Warranty

Complete warranty for two years.

Stores & FD 1 38 Officer
(An Autonomous Institute of the Dept. of Biotechnology, Govt. of India) INSTITUTE OF LIFE SCIENCES Bhubaneswar-751 023, INDIA

Cont. P/5



Veterinary Hematology Analyzer

QTY: One (1)

- 1. Fully automatic system with 17 or 19 parameters. Minimum parameter should include the followings,
- -WBC, LYMa, LYM%, MONOa, MONO%, GRANa, GRAN%
- -NEUTa, NEUT%, EOSa, EOS%
- -RBC, MCV
- -PLT, MPV
- -HGB
- -HCT, MCH, MCHC, RDWa, RDW%
- 2. Advanced veterinary WBC differential count
- 3. Multiple species (mice, rat and rabbit is compulsory) with programmable analysis profiles.
- 4. Maximum volume of sample 20 µl in case of venous blood, 20-25 µl in case of pre -diluted blood.
- 5. Built-in mixer for tubes of different sizes (atleast 3 nos).
- 6. Open tube inlet or direct start with a 20µl microcapillary.
- 7. Colour touch screen (7 inch or more) with self intuitive operation and printing or PC connected with a printer (branded PC and printer to be supplied by the vendor).
- 8. Online alert for the abnormal results including hematological guidelines for pathological samples
- 9. Auto sample probe cleaning.
- On board clot prevention system.
- 11. Capacity up to 60 samples or more per hour.
- 12. The system can be used with reagents from any source/vendor.
- 13. Data storage- 1000 records (including histograms) or more
- 14. USB and/or RS232 output.
- 15. Connector for external PC keyboard.

Warranty

Complete warranty for two years.

SL.7

X-Ray Irradiator for Small Animal and Cells/Tissue

QTY: One (1)

All the items should be given in the main quote and not as an optional item, if not specified otherwise.

- 1. The dose of radiation that will be delivered by the beam profile of the X-ray irradiator must be substantially equivalent to cesium or cobalt radiators. Proper documents to support the above must be provided by the manufacturer.
- 2. The machine should comply with domestic and international regulations for safety of cabinet X-ray systems.
- 3. Touch screen control interface for ease-of use. Password login for system security.
- 4. Automatic warm-up and tube conditioning for extended tube life.
- 5. Energy Range: 160-225 KV.
- 6. Tube current at max voltage: 25mA or less
- 7. System Power: 4000W
- 8. The system should be equipped for cells (both adherent and suspension), tissues and small animal (mice/rat) radiation with dose rate (as per energy and current mentioned in point 5 and 6): >5 Gy/min (filtered) and up to >17 Gy/min (unfiltered). It should also be capable of delivering dose as low as 1.2 Gy/min or lower.
- 9. Focal spot size: 5.5-8 mm²
- Inherent filtration: Beryllium-Al/Cu.
- 11. Exposure field size: 8 cm to 40 cm
- 12. Exposure time: Programmable or continuous. 13. Power requirement: 220 VAC \pm 10%, 50/60 Hz.
- 14. Cooling: Internal (external cooling device technically not acceptable). High capacity cooling option for 30 minutes or more continuous irradiation of cells should be integrated in the system. Not be mentioned as optional item.
- 15. The irradiator must be supplied with spot beam collimator for targeted tumor irradiation.
- 16. Dose uniformity: 94% or better. Beam uniformity must be mentioned.
- 17. The system should be quoted and supplied with integrated real time dosimeter that provides external digital read out and allows for exact dose measurements for both dose rate and accumulated dose.

An Autonology, Govt. of Indial INSTITUTE OF LIFE SCIENCES Bhubaneswar-751 023, INDIA Cont. P/6

18. Must include emergency stop switch and preferably door interlocks to address a high voltage and low voltage issues. In either case the unit should shut down as per requirement of the International Code of Regulations for a cabinet x-ray machine.

19. The system must be supplied with the accessories (not as an optional) from the vendor as per the requirement of the system.

Autoclavable Mouse/Rat Disk (or equivalent) – 20Nos

· Module (if the system does not have an inbuilt system) to ensure delivery of 1.2Gy/Min or lower with > 94% dose uniformity

• Appropriate mouse pie cages – 10

- · Restrainers/ shield for tumor targeting to shield the body of the animal with the exception of the targeted area. Left flank - 2 Nos, Right flank - 2 Nos, Dual flanks - 2 Nos, Whole body - 2 Nos & Head Shields - 2Nos.
- · Cell culture dish or flask holder (i.e., if the system does not have an integrated system for the above).

20. The machine should be mounted on wheels and can be moved from one place to another. 21. A Certificate from manufacturer that it is feasible to handle animals aseptically (especially immunocompromised mice/ rat) in this machine

22. An undertaking from local agent of the supplier that they will assist Institute of Life Sciences to secure NOC and Type 1 approval from AERB or other regulatory bodies, as

deemed appropriate. Necessary documents shall be provided by ILS.

23. The manufacturer or the local service organization shall be responsible for quoting and supplying appropriate UPS, electrical connections in the designated room. Pre-Installation requirements must be accompanied with the offer with a clear written statement what is required to be provided by Institute of Life Sciences and what will be undertaken by Local agent of the supplier.

Warranty

Complete warranty for two years. Three years extended warranty after the completion of the usual warranty along with terms and conditions

51.8

Individually Ventilated Caging Systems (IVC)

QTY: One (1) unit

All the items should be given in the main quote and not as an optional item, if not

All the items should be given in the main quote and not as an optional item, it not specified otherwise.

Supply, Installation, Commissioning and Testing of "Mobile, Individually Ventilated Caging Systems (IVC) for housing Specific Pathogen Free (SPF) mice under asseptic conditions with bottle type drinking water arrangement. The IVC system should have the capabilities of both positive and negative pressure operations. Complete with all accessories like Hepa filter fitted blower and exhaust assemblies/AHU, necessary ducting, gauges, complete set of autoclavable cages (made up of polysulfone or udel material capable of a few hundred autoclave cycles), cover grills, cage top, water bottles, label holders etc. The unit should be double-sided cage rack type, with a total cage capacity of 192 nos. in a double-sided rack configuration (96 on each side). The rack unit should be amenable for sterilization and decontamination procedures.

Cages: To be made of polysulfone or udel material capable of a few hundred autoclave cycles

decontamination procedures.

Cages: To be made of polysulfone or udel material capable of a few hundred autoclave cycles and should be complete with cover grills, water bottles, label holders etc. The cage top should have a micro filter to allow for gaseous exchange without compromising the level of sterility within the cage during any system failure and the manufacturer/supplier has to clearly state this in their offer. The filter top should seal appropriately assuring containment integrity and low speed air diffusion into each cage. The provision of locks or clamps at the cage top level is essential. Mice cages should not have more than 14 cm height and the floor area should be 483-530cm². Total cage capacity 192 nos.

Mobile blower-exhaust modules /Air Handling Unit (AHU):

Wall/Ceiling mount is NOT TECHNICALLY ACCEPTABLE

HEPA filters and pre filters should be fitted on both supply and exhaust systems of AHU and the efficiency level of the filter should be 99.99% to prevent the entry of particles of more than 0.3micron size.

the efficiency level of the lifter should be s

The AHU should have the capacity to provide up to 80 or more air changes/hour. The number of air changes per hour (ACH) should be programmable by the user. There must be a provision to discharge the exhaust air out of the room and should be provided by the supplier. Requisite battery/UPS backup for a period of at least 3-4 hours in case of electrical failure is required and shall be within the scope of supply.

Password protected access to the system.

Password protected access to the system.

Noise generated from the AHU/blower exhaust assemblies should not exceed 50db.

Warranty-2 years or above.

Mobile Rack:

Suitable for cage loading from both sides. Frame, structure, special rubber grade supply and exhaust air header/nozzles for proper air distribution. Flexible air hose for supply of air and exhaust air connections. Sensor pipes with QRC for cage pressure.

Floor diagram of IVC units, system manuals should be supplied by the supplier. Other essential documentation requirements include but not limited to certifications of the manufacturer, testing and validation reports of the IVCs.

Cont. P/7

Store Various Institute of the Dept. of Biotechnology, Govt. of India) INSTITUTE OF LIFE SCIENCES Bhubaneswar-751 023, INDIA

Teble Top Centrifuge (Refrigerated): 4 nos. (Fow)

Microprocessor controlled table top refrigerated centrifuge with adjustable speed from 200 to 14,000 rpm and max. RCF Value 20000 x g or higher. CFC- free refrigerant.

Maintenance -free frequency -controlled induction drive motor.

Temp. range: -9 deg. C to +40 deg. C

Pre cooling function to achieve 4 deg. C should be available.

6. Max timer range: 9 h, 99 min + continuous

- Drive system: Direct, brushless induction drive.
- Imbalance Detection System: Technology for advanced rotor management system to identify imbalance during run due to liquid spillage or tube breakage.
- It should be certified for quality & safety by International Certification Agencies
- 10. Thesealing lids for rotors must be certified for bio-containment by a 3rd party International agency. 11. Power: Suitable for 230V, single phase, AC, 50 Hz operation.
 - 1. 4 x 180 ml (or 250 ml) swing out rotor with Max. Speed 4000 rpm or more at 4 deg. C with autoclavable corrosion resistant bucket, bio-containment lids with 2X15 ml (capacity four tubes) & 2X50 ml (capacity four tubes) conical tube adaptors. Swing-out rotors must be aerosol-tight.
 - 2. 6-8 x 50ml fixed rotor (autoclavable, corrosion resistant) preferably with lid with max. Speed 12000 rpm (20000 RCF) or more at 4 deg. C with 15 ml conical tube adaptors

- 3. Rotor or adaptor for 96-well plates with Max. Speed 4000 rpm. 4. 30-48 x 2ml fixed rotor (autoclavable, corrosion resistant) preferably with aerosol tight lid with
- max. speed 10000 rpm (15000 RCF or more)or more at 4 deg. C with 15 ml conical tube adaptors 13. Preferably Auto Lock rotor system so that it can be installed and removed without any tools.
- 14. Preferable comes with strong, durable rolling cabinet (for storing accessories) and will able to hold

SO.10 Digital dual chamber unstirred water bath: 2 no. (+wo)

- Digital dual chamber water bath with independent temperature control. 2.
- Dual chamber capacity: approximately 6L and 14 L.

Temperature range: ambient to 99.9°C

- 4. Interior chamber to be made of stainless steel. Epoxy powder-coated exterior chamber,
- Digital temperature display and controller.
- Power supply 230V, 50 Hz, single phase.
- Preferably should include drain, clear lid and tray.

Microvolume Spectrophotometer: 2 no. (+wo)

Computer Controlled low volume UV-VIS Spectrophotometer with following specifications: The instrument should preferably have the sample retention technology that allows a sample to be pipetted directly onto an optical measurement surface. The system should use its own surface tension to hold the sample in place during the measurement cycle. The system should be able to measure nucleic acid both by Pedestal system:

- 1. Wavelength Range: wide, 200-800 nm or better
- 2. Minimum Sample Size of 0.5 μ L with pathlength of 1 mm (auto-ranging to 0.05 mm) and light Source
- 3. Wavelength Accuracy: +1 nm; Spectral Resolution: <1.8 nm or better; Absorbance Precision: 0.002
- 4. Absorbance Accuracy: ± 2% (at 0.76 absorbance at 257 nm) or better 5. Detection limit: 2 ng/µL dsDNA or lesser

6. Maximum Concentration: 12,000 ng/μL (dsDNA) or more

Options should also be available for use with cuvette measurements:

1. Pathlength: includes pathlengths of 10, 5, 2, and 1 mm.

2. Stir speed :speed settings range from 1-10.

Heater :37 °C Heating facility of cuvette holder shall be offered with the accuracy of ±0.5 °C. When selected, the current temperature of the cuvette shall be displayed at software screen.

Heating Time: 1-10 minutes for the cuvette holder to reach 37 °C.

Windows based software shall be offered to display data in graphical form and numerical form. Powerful, user-friendly software with preconfigured modules and method editor

one pair 10 mm optical path x 12.5mm Exterior width Silica Cuvette should be quoted.

Also quote for compatible laptop preferably of Dell/Lenovo with spec: Intel core i5,5th higher, at least 8GB memory, 1 TB HDD, Appx. 15.5" LED HD Monitor, Intel HD graphics, Win 8 or

in Autonomous Institute of the Dept. of Biotechnology, Govt. of India) INSTITUTE OF LIFE SCIENCES Bhubaneswar-751 023, INDIA

Eng