

मुख्यालय उत्तर प्रदेश
पत्र संख्या: टीएसएफ-75-2014(पार्ट)

आवश्यक / महत्वपूर्ण / समयबद्ध
पुलिस तकनीकी सेवायें
दिनांक : अप्रैल 2016

निविदा विज्ञापन हेतु सुझाव माँगा जाना

अवगत कराना है कि उ0प्र0 पुलिस तकनीकी सेवायें मुख्यालय लखनऊ द्वारा जनपद आगरा एवं वाराणसी में डी0एन0ए0 यूनिट की स्थापना की जानी है, जिसके लिये विधि विज्ञान प्रयोगशाला हेतु डी0एन0ए0 जॉच से संबंधित कतिपय डी0एन0ए0 उपकरण/सामान क्रय किये जाने हैं। उपकरणों का विवरण निम्नवत है। साथ में इन उपकरणों का तकनीकी स्पेसिफिकेशन संलग्न किया जा रहा है।

Establishment of DNA Unit on turnkey basis under Quality contract for each instrument. Technical specification draft for purchase of DNA unit are uploaded for consideration of related firms, in case any related firm have any suitable suggestions please provide.


LIST OF INSTRUMENTS FOR TWO DNA UNIT

S.No.	Instrument	Quantity		Approximate price in lakhs	
		FSL Varanasi	FSL Agra		
1.	Genetic analyzer	1	1		
2.	PCR machine	1	1		
3.	Shaking water bath	3	3		
4.	Refrigerated table top centrifuge	1	1		
5.	DNA profiling system for HID	1	1		
6.	Real time-PCR	1	1		
7.	Deep freeze (-20°C)	2	2		
8.	Deep freeze (-70 °C)	1	1		
9.	Electronic balance	1	1		
10.	DNA extraction device	1	1		
11.	Homogenizer with bone cutter	1	1		
12.	Ice machine	1	1		
13.	Thermo mixer with thermoblocks	1	1		
14.	UPS 20 KVA	1	1		
15.	Plate centrifuge with rotor	1	1		
16.	Miscellaneous small equipment				
I.	pH meter	1	1		
II.	Autoclave	1	1		
III.	PCR work station	1	1		
IV.	Microfuge	2	2		
V.	Vortex	2	2		
VI.	Vacuum cleaner	1	1		
VII.	Air sterilizer	1	1		
VIII.	Hot air oven	1	1		
IX.	Microwave oven	1	1		
X.	Laptop with colour laser printer	1	1		
XI.	Refrigerator	3	3		
XII.	Liquid nitrogen container	2	2		

17.	Liquid Handling System				
I.	Set of 5 micropipettes (0.1 µl to 1000 µl)	2	2		
18.	Chemicals/ Glassware/ Plastic wares/other consumables (100 cases)	1	1		
19.	Infrastructure	1	1		
I	Lab work station				
II	Provision for maintaining ambient temperature				

अतः उक्त उपकरणों/सामानों के तकनीकी स्पेसिफिकेशन के संबंध में उपकरण के निर्माता फर्म/अधिकृत डीलर्स/अधिकृत एजेंट अपने-अपने अभिमत/सुझाव तकनीकी सेवायें मुख्यालय को ई-मेल सं०—tshq@nic.in पर 10 दिवस के अन्दर उपलब्ध करायें, ताकि अग्रेतर कार्यवाही की जा सके। उक्त सूचना उ०प्र० पुलिस की वेबसाइट नं०— uppolice.gov.in पर डाउन लोड कर देखा जा सकता है।

संलग्नक:तकनीकी स्पेसिफिकेशन


(विजय प्रकाश)

पुलिस महानिरीक्षक,
पुलिस तकनीकी सेवायें मुख्यालय
उ०.प्र०, लखनऊ।

प्रतिलिपि: निदेशक, विधि विज्ञान प्रयोगशाला, उ०प्र०, लखनऊ को सूचनार्थ प्रेषित।

Establishment of DNA Unit on turnkey basis under Quality contract for each instrument are as follows:

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		FSL Varanasi	FSL Agra		
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8.	Deep freeze (-70 °C)	1	1		
9.	Electronic balance	1	1		
10.	DNA extraction device	1	1		
11.	Homogenizer with bone cutter	1	1		
12.	Ice machine	1	1		
13.	Thermo mixer with thermoblocks	1	1		
14.	UPS 20 KVA	1	1		
15.	Plate centrifuge with rotor	1	1		
16.	Miscellaneous small equipment				
I.	pH meter	1	1		
II.	Autoclave	1	1		
III.	PCR work station	1	1		
IV.	Microfuge	2	2		
V.	Vortex	2	2		
VI.	Vacuum cleaner	1	1		
VII.	Air sterilizer	1	1		
VIII.	Hot air oven	1	1		
IX.	Microwave oven	1	1		
X.	Laptop with colour laser printer	1	1		
XI.	Refrigerator	3	3		
XII.	Liquid nitrogen container	2	2		
17.	Liquid Handling System				
I.	Set of 5 micropipettes (0.1µl to 1000 µl)	2	2		
18.	Chemicals/ Glassware/ Plastic wares/other consumables (100 cases)	1	1		
19.	Infrastructure	1	1		
I	Lab work station				
II	Provision for maintaining ambient temperature				
	TOTAL APPROX COST.				1025.00

gmb

INSTRUMENT FOR DNA UNIT

GENETIC ANALYZER

SPECIFICATIONS

- Fully automated 24-capillary electrophoresis (CE) genetic analysis system for DNA sequencing, genotyping, STR analysis applications
- The detection system should have Virtual filters for fluorescent detection and Peltier cooled CCD camera capable of multiple dye detection (6 fluorescent dyes by a single solid state laser and facility to accommodate new dyes and chemistry without changes in the optical hardware)
- Should have plate with 96- or 384-Autosampler plate trays and should have capability of tracking consumables with uncoated capillaries with 36 cm for forensic application and suitable capillaries array with high efficiency application
- The instrument should be validated for latest forensic applications DNA sequencing STR analysis with published and validated data Certificate by competent authority organization under government of India viz director or Center of DNA Fingerprinting at Diagnostics (CDFD) Hyderabad or Center for cellular and Molecular Biology (CCMB) Hyderabad. Centre/State Forensic Sciences Laboratories (CFSL/SFLs) the equipment and kit is validated for forensic use.
- The instrument should be supplied with licensed software i.e HID software for fragment SNP analysis and for comparative DNA sequencing mutation detection etc.
- Should have a dedicated compatible desktop computer configuration windows 7, i7 processor, office 10, 4 GB RAM, 500 GB HDD, 1 GB graphic card TFT/LED monitor 22 inches and antivirus with standard brand color jet laser printer.
- A compatible two lab cooling device to maintain the ambient temperature suitable for instrument.
- A compatible 5KVA online UPS with 6 hours backup.
- One spare set of all accessories and consumable chemicals along with HID Y STR DNA sequencing kit for at least each 400 reactions with all necessary reagent & protocol.
- Sufficient plastic ware including 96 well plate and gene sequencing tubes plates septa for 2000 samples
- System should be complete with all the accessories to run the system properly at time of installation
- The supplier should have a good service and application support backup along with instrument to provide an effective application related troubleshooting and support. The supplier should provide application training on the operation of the instrument chemistry software. Should be validated as per SWGDAM and DAB guide for forensic with publish and validated with acceptability of result of evidence in court. Validation certificate should be attached with offer.
- System should be installed at least 5 labs in India to check the performance of system

INSTRUMENT FOR DNA UNIT

PCR MACHINE

SPECIFICATIONS

- Latest Generation (modular/steady slope) 96 well blocks gradient thermal cycler system with power supply 230 V, 50-60Hz.
- Block should have standard and fast run mode with Peltier technology for uniformity and gradient temperature control with sample format 96 well plate or 0.2ml tubes.
- Temperature control range from 4 °C to 99 °C with temperature accuracy/uniformity should be ± 0.2 °C to ± 0.4 °C.
- Temperature heating and cooling ramp rate should be 3 °C /S and 2.5°C/S respectively.
- The system should have auto restart facility after power outages.
- Lid temperature range should be from 37 °C to 115 °C and programmable.
- System should have touch screen display for programming, with memory for more than 700 programs.
- System should have 2 USB ports, for protocol transfer.
- A compatible 2 KVA online branded UPS with 2 hour backup should be provided.
- System should be provided with two each liquid handling device (i.e. 10 μ l and 2.5 μ l).
- System should be certified/ validated for PCR/ thermal cycler process for HID/ Y chromosomal and mtDNA analysis kit for forensic applications with published documents/ certificate.
- System should be complete with all the accessories to run the system properly at time of installation.

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INSTRUMENT FOR DNA UNIT

SHAKING WATER BATH

SPECIFICATIONS

- Shaking water bath with stainless steel body of dimension 700x350x260mm.
- Advanced microprocessor controlled temperature regulation.
- System should have temperature range from 20 °C to 99 °C with temperature stability range ± 1 °C to 2 °C.
- Multi display LED indicating temperature and setting display.
- Seamless splash proof keyboard.
- System should have heating capacity 2kw.
- System should have shaking frequency from 20rpm to 200 rpm shaking amplitude 15mm to 25 mm.
- System should have carrier tray, suitable test tubes, racks and additional racks for 15ml and 50 ml tubes.
- Provision for drainage.
- System should be quoted as complete with all necessary accessories to run the system properly at the time of installation.

21/11/18

INSTRUMENT FOR DNA UNIT

REFRIGERATED TABLE TOP CENTRIFUGE

SPECIFICATIONS

- Refrigerated centrifuge with rotor for 1.5/ 2.0 ml centrifuge tube which run at 230 V/ 50-60 Hz.
- System should have the facility for automatic rotor recognitions.
- Instrument should have microprocessor controlled with backlit graphical LCD display for run.
- System should have maximum speed 15000 to 18000 rpm/ rcf 25000 to 30500x g.
- Temperature range from -10 °C to 40 °C with CFC free refrigeration system.
- Acceleration and deceleration rates should be less than 15sec.
- Should have precooling programs and store up to 99 programs.
- Noise level at maximum speed should be less than 70 dB.
- A compatible branded stabilizer should be provided.
- System should be complete with all accessories to run the system properly at the time of installation.

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INSTRUMENT FOR DNA UNIT

DNA PROFILING FOR HUMAN IDENTIFICATION SYSTEM

SPECIFICATIONS

- Fully/ Automated 8 channel processed in a single run capillary array-based technology for separation of STR Loci
- Fully/ Automated human identification system STR loci analysis after sample/ pcr product are added through to walk away automated analysis and CODIS formatted output file.
- System for direct sample / pcr product inputs i.e swab and forensic samples
- Fully license software HID with CODIS format test file with mixture analysis tool.
- Touch Screen / Computer user interface with USB port or automate export to network.
- Embedded / Windows based computer compatible with minimum windows 7 and 500 GB HDD or more, 4 GB RAM, mother board compatible with the instrument software with standard branded colour Laser jet printer.
- System should be validated for laser forensic application and able to run latest 24 or more loci STR/ Y-STR chemistry. Validated for forensic HID application from different manufactures to be run on the instrument.
- Should be able to process 1 to 7 samples (odd or even in number including allelic ladder) without positive or negative control in any lane if necessary.
- Should complete the analysis /process from sample/product to result in three hours.
- Compatible 2 KVA online UPS with 6 hours backup.
- Should have kits and plastic wares consumable and HID kits / cartridges for forensic application for 400 samples (Bone, Tooth, Hair etc).
- A compatible two lab cooling device to maintain ambient temperature suitable for instrument.
- System should be complete with all accessories to run the system properly at the time of installation.
- System should be installed at least **5 labs** in India to check the performance of system.
- The instrument should be validated for latest forensic applications DNA sequencing STR analysis with published and validated data Certificate by competent authority organization under government of India viz director or Center of DNA Fingerprinting at Diagnostics (CDFD) Hyderabad or Center for cellular and Molecular Biology (CCMB) Hyderabad. Centre/State Forensic Sciences Laboratories (CFSL/SFLs) the equipment and kit is validated for forensic use.

Signature

INSTRUMENT FOR DNA UNIT

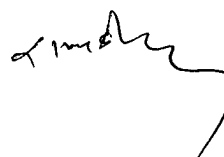
RT-PCR

SPECIFICATIONS

- Latest generation 96 well blocks thermal cycling system for forensic applications.
- The instrument should have 5 color detection capabilities to provide flexibility to perform a variety of applications including real time quantitation, SNP genotyping, and gene expression analysis and utilizing internal positive control.
- The instrument should have advanced optical configuration that support broad range of fluorophores dyes.
- Sample format 96 well plates or 0.2 ml tubes and optimized for 15-100 microliters.
- The system should be validated for latest forensic applications like human/male DNA quantitation kits with published and validated data. Certification by competent authority / organization under government of India viz Director, Center of DNA Fingerprinting and Diagnostics (CDFD) Hyderabad, Center for Cellular and Molecular Biology (CCMB) Hyderabad, Centre/ State Forensic Science Laboratories (CFSLS/SFSLs), the equipment and kit is validated for forensic use, failing which offer will be rejected.
- A compatible 2KVA online UPS with 4 hours backup should be provided.
- A compatible two lab cooling device to maintain the ambient temperature suitable for instruments.
- Should have a dedicated compatible desktop computer configuration- windows 7, 1.3 processor, office 10, 4 GB RAM, 1 TB Hard disk, 1 GB graphics card, TFT/LED monitor 22 inches and antivirus with standard brand color jet laser printer. (Internal RAM 256 MB).
- Should have latest kits and plastic wares, consumables for quantitation for human DNA and male human DNA (800 reactions).

Software specifications

- The instrument should be supplied with licensed software that designed probes and primers.
- Applications comparative Ct, Standard Curve, Relative Standard Curve, Allelic discrimination, plus/minus Dye discrimination multiple data comparison.
- Built in software features for sample quality assessment (inhibition, male/female ratio and degradation index), capability of calculating dilutions and reaction setups of HID Kits.
- System should be complete with all accessories to run the system properly at the time of installation.

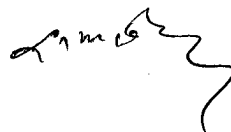


INSTRUMENT FOR DNA UNIT

DEEP FREEZER (-20°C)

SPECIFICATIONS

- Type: Vertical Branded and frost free (220-230 V, 50 Hz).
- Net Capacity: 300 liter and above.
- Temperature range: -19°C to -21 °C (minus19°C to minus 21°C) with electronic controller/ temperature alarm.
- Lock facility preferred.
- Freezer drawers/ baskets/ shelves for separate preservation.
- Preferably CFC free refrigerant.
- Suitable branded stabilizer.
- System should be quoted as complete working system with all necessary accessories to run the system properly at the time of installation.



INSTRUMENT FOR DNA UNIT

DEEP FREEZER (-80°C)

SPECIFICATIONS

- Vertical, upright model, branded, frost free.
- Three shelves with racks/ boxes.
- Net capacity: 380 liter and above.
- Temperature range: - 20°C to -85°C.
- CFC free refrigerant.
- Microprocessor controlled with large LED display with keypad control panel.
- Door key lock.
- Power failure, door high/ low temperature alarm, power failure/ high/ low temperature etc.
- Suitable branded stabilizer.
- System should be complete with all accessories to run the system properly in the laboratory.

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INSTRUMENT FOR DNA UNIT

ELECTRONIC BALANCE

SPECIFICATIONS

- Weighing capacity above 200gm with accuracy ± 0.01 mg.
- Maximum linearity ± 0.1 mg.
- Pan size 80-90 mm.
- Fully automatic, calibration and adjustment function and weights for calibration.
- Motorized draft shield system.
- Backlit graphic display.
- Built in application programmes.
- System should be complete with all accessories to run properly in the laboratory.

dim

INSTRUMENT FOR DNA UNIT

DNA EXTRACTION SYSTEM

SPECIFICATIONS

- DNA extraction and purification system validated for extraction of DNA from different types of forensic samples (i.e. blood, blood stains, tissues, hair, bone, tooth, semen, cigarette butt, chewing gum, paraffin embedded slide etc)
- System should be a bench top system based on pre filled cartridge extraction principle.
- System should be able to extract DNA from at least 13 samples or more at a time. System should automate the DNA isolation steps of binding washing and elution.
- The instrument should be based on magnetic beads prefilled kits/ cartridges for DNA extraction along with suitable consumables/ buffers/ kits/ cartridges.
- Forensic validated protocols i.e. for tissue, bone, teeth, hair compatible with instrument should be provided with the instrument.
- Kits/ cartridges and disposables/consumables for processing whole blood (200 samples) and all forensic samples i.e. bone, teeth, hair, tissue etc (400 samples).
- Should have Software for instrument operation/ analysis and data management.
- System should be cross contamination free and should include a bar code scanner.
- Should have a dedicated compatible desktop computer configuration- windows 7, 1.3 GHz processor, office 10, 4 GB RAM, 1 TB Hard disk, 1 GB graphics card, TFT/LED monitor 22 inches and antivirus with standard brand color.jet laser printer. (Internal RAM 256 MB).
- System should be complete with all the accessories to run the system properly at time of installation.

dimdy

INSTRUMENT FOR DNA UNIT

HOMOGENIZER WITH BONE CUTTER

SPECIFICATIONS

- A system for efficient grinding, mixing and homogenization of hard and soft forensic samples i.e. bone/tissue/teeth etc.
- Homogenization based on impact and friction with vibrational frequency up to 30 Hz for up to 20 samples per run.
- System should have three grinding modes i.e. dry, wet and cryogenic with screw top for leak-proof grinding jars of size 1.5ml/5 ml/15ml/50 ml.
- Grinding jar with grinding tools should be hardened steel, stainless steel, tungsten carbide etc.
- System should have digital display of frequency/ time and have storable sample operating programs.
- System should have self centering clamping device for forensic samples like bones.
- System should have accessories like jars/ balls/ adaptor racks for vials and tubes grinding tool material along with cryokit for 400 forensic samples.
- One spare set of all accessories and consumables and cryokit.
- System should have all the accessories to run the system at the time of installation.

dim

INSTRUMENT FOR DNA UNIT

ICE FLAKE MACHINE

SPECIFICATIONS

- System should be branded to generate flake ice in granular type which have residual water content of 25% thus being refrigerated.
- System should have capacity to produce ice flakes 3.75 kg/hr or 90kg/ 24 hour.
- Should have refrigerant R-134 a type with dimensions of bin (WxDxH) 22x24x28 inches.
- System should have capacity of 20 kgs and above with low water consumption.
- System should be complete with all accessories to run the system properly at the time of installation.

Limbo

INSTRUMENT FOR DNA UNIT

THERMOMIXER WITH THERMOBLOCKS

SPECIFICATIONS

- Instrument with latest thermal block with Peltier based temperature control and mixing technology.
- Should have exchangeable thermo block suitable for 1.5 ml, 2.0ml, 15ml, 50ml tubes and PCR 96 well plate with automatic block recognition.
- Temperature control device range from -15 °C below room temperature to 100 °C with temperature and block homogeneity (± 0.5 °C)
- Should have mixing speed from 300 up to 3000 rpm.
- Digital display of time, temperature and speed control.
- Should have program space and predefined programmable keys for temperature.
- System should have facility for transferring the data – USB interface.
- System should be complete with all accessories to run the system properly at the time of installation.

2/11/16

INSTRUMENT FOR DNA UNIT

UPS- 20 KVA

SPECIFICATIONS

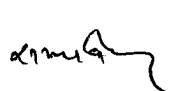
- System should be standard branded with storage capacity 20 KVA.
- System should have output voltage 220 Volts and current 5 Amp.
- System should have provided with compatible standard batteries with power backup 6 hours.
- System should be complete with all accessories to run the system properly at the time of installation.

dim 5/2

INSTRUMENT FOR DNA UNIT

PLATE CENTRIFUGE WITH ROTOR

SPECIFICATIONS

- Multipurpose refrigerated centrifuge with rotor for plates (MTP, 96 well PCR and deep well plates) (max speed 4000 to 5000 rpm) which run at 230 volt/50-60 Hz. Additional rotor for 1.5 ml / 2.0 ml and 15 ml/50 ml centrifuge tubes.
 - System should have the facility for automatic rotor recognitions.
 - Instrument should have microprocessor controlled with backlit graphical LCD display for run.
 - System should have maximum speed 15000 to 18000 rpm/ rcf 25000 to 30500x g.
 - Temperature range from -10 °C to 40 °C with CFC free refrigeration system.
 - Acceleration and deceleration rates should be less than 15sec.
 - Should have precooling programs and store up to 99 programs.
 - Noise level at maximum speed should be less than 70 dB.
 - A compatible branded stabilizer should be provided.
 - System should be complete with all accessories to run the system properly at the time of installation.
- 

INSTRUMENT FOR DNA UNIT

pH METER

SPECIFICATIONS

- Microprocessor based pH meter with pH range 1.00 to 14.00.
- LCD digital display with resolution ± 0.01 .
- Supplied with pH electrode, stand, standard buffer of pH 4/7/9.
- pH meter should have mV range 0 to 1999 mV with accuracy $\pm 1\text{mV}$.
- System should be complete with all accessories to run the system properly at the time of installation.

Signature

INSTRUMENT FOR DNA UNIT

AUTOCLAVE

SPECIFICATIONS

- Should have a unique single lever lock for lid with single hand opening.
- Should microprocessor based control which should ensure repeatability & a high accuracy.
- Should follow conformance to national and international standards.
- Should have internal chamber and lid along with all wetted parts fabricated from stainless steel.
- Should have single lever pronged closure system with patented silicone gasket external vertical panels duly heat cured epoxy coated.
- Should ease lift and closing of the lid.
- Should have castor for ease of movement.
- Should have flexible sensor which should enable in-situ control and monitoring of cycles.
- Working chamber should of size approx (\emptyset X D)/ Capacity – 35 x 55 cm/ 53 lit.
- Carrier (\emptyset X D) should approx: 1 of 30 \emptyset X 50 cm.

2/11/15

INSTRUMENT FOR DNA UNIT

PCR WORK STATION

SPECIFICATIONS

- Control potential PCR contamination with the built-in UV for an activation of DNA between experiments.
- The 254nm shortwave UV source positioned as overhead UV; select mode include UV air recirculate to circulate the UV decontaminated air
- UV is controlled with a key switch and 30-min timer to decontaminate apparatus and chamber with the shortwave UV
- A safety shut-off switch automatically turns the UV light off when the door is open
- Antimicrobial coated metal surface reduce bacterial growth.
- The workstation is designed for placement of large instruments on the work area or tubes, flasks and pipettes on the two removable shelves
- The built-in power outlets allow operation of equipment for use in PCR applications
- Interior Dimensions should not less then 700 X 540.
- Minimum four power outlets, two shelves should be present.
- Light Source:- 254nm 25 watt UV: Chamber / Air Recirculator.

Signature

INSTRUMENT FOR DNA UNIT

MICROFUGE

SPECIFICATIONS

- Maximum speed 14000 rpm/ 16000 x g.
- Complete with 18 X 1.5/2.0 ml rotor.
- Brushless, maintenance free motor, with a “ Quick button”
- With and extra strip spin adapter for two 8X0.2ml.
- Strips used in thermal cycling.

gimibm

INSTRUMENT FOR DNA UNIT

VORTEX

SPECIFICATIONS

- Shaking movement: Orbital.
- Orbital diameter [mm]: 4
- Motor type: Shaded-pole motor.
- Motor rating Input/ Output [W]: 58/10
- Permissible ON time: 100% power 30 mins.
- Speed range [rpm] : 0-2500
- Run type: continuous / touch operation.
- Protection class acc. To DIN 60529 : IP 21.

dimia

INSTRUMENT FOR DNA UNIT

VACCUM CLEANER

SPECIFICATIONS

- Power suction and blower function with 1200 W motor.
- Wide range of accessories to suit varied cleaning needs.
- Variable power control.

21m523

INSTRUMENT FOR DNA UNIT

AIR STERILIZER

SPECIFICATIONS

- Provision for system to remove dust, bacteria and all air suspended solid particles with rated capacity above 5000 CF per hour.
- High quality ABS plastic body, compact light weight body of the size 65 X 45 X 30 cm.
- Centrifugal blower with oscillating louvers and air ionizers.
- Honey comb filter with washable prefilter.
- Provision for activated charcoal filter preferred.
- Provision for UV light attachment.
- System should be quoted as complete working system with all necessary accessories to run the system properly at the time of installation.

amby

INSTRUMENT FOR DNA UNIT

HOT AIR OVEN

SPECIFICATIONS

- Double walled
- Inner chamber size should be 450 X 450 X 600 mm.
- Temperature range Ambient temperature, to 250 °C with temperature controlled by PID controller.
- Heating elements are placed in ribs at the bottom and sides. Double walled inside stainless steel. Outside Mild steel painted in epoxy powder coating, perforated adjustable shelves, two indicators and an ON/OFF switch.
- To work on to 220/230 volts A.C. with or without air circulating fan.

ajm

INSTRUMENT FOR DNA UNIT

MICROWAVE OVEN

SPECIFICATIONS

- System should have capacity 25 litre with convection type heating system.
- Digital display of temperature, time and power level.
- Power level should be 180 to 800 watts.
- System should have auto defrost and quick start buttons.
- System should be complete with all accessories to run the system properly at the time of installation.

Signature

INSTRUMENT FOR DNA UNIT

LAPTOP WITH COLOUR LASER PRINTER

SPECIFICATIONS

- Should have 4th generation Intel processor.
- Should have Operating System windows 10.
- System should have 8 GB RAM and 1 TB Hard Disk with 1 GB Graphics card.
- Screen size should be up to 15.6 inch along with applications like MS Office and Antivirus.
- System should be provided with branded colour laser jet printer with high resolution.
- System should be complete with all accessories to run the system at the time of installation.

Time

INSTRUMENT FOR DNA UNIT

REFRIGERATOR

SPECIFICATIONS

- Vertical, branded, frost free.
- Double door.
- With net capacity 250 to 300 litres.
- Temperature / humidity control, with thermostat.
- CFC free.
- Lock facility.
- Star rating preferred.
- Suitable branded stabilizer.
- System should be complete with all accessories to run the system properly at the time of installation.

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INSTRUMENT FOR DNA UNIT

LIQUID NITROGEN CONTAINER

SPECIFICATIONS

- Steady plastic container for liquid nitrogen with leakproof tight lid. Capacity 11 lit.
- Neck dia. About 50 cm. loss rate about 0.15, static holding time about 80 days.

dim 2

INSTRUMENT FOR DNA UNIT

LIQUID HANDLING SYSTEM

SPECIFICATIONS

- Liquid handling system should meet precision and accuracy.
- System should have spring loaded tip cone with four digits volume display and fully autoclavable.
- System should have range from 0.1 to 2.5 μ l, 0.5 to 10 μ l, 10 to 100 μ l, 20 to 200 μ l and 100 to 1000 μ l autoclavable single channel pipettor.
- System should have calibration certificate.
- The system should be provided with compatible suitable tips (approx. 5000 tips) for each with pipette stand.

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INSTRUMENT FOR DNA UNIT

INFRASTRUCTURE

SPECIFICATIONS

- LAB WORK STATION
 - Island table with granite top with UPS electrical points for instruments, Nos 2 size 120x60x36 inches (LXWXH).
 - Instrument table with granite top with UPS electrical points, Nos 6 size 60x30x34 inches (LXWXH).
 - Working table with mica top Nos 6 size 60x30x30 inches (LXWXH).
 - Revolving office chair. Nos 6
 - Acid resitant 6 racks size 60x10x24 inches (LXWXH).
 - Stools with adjustable height. Nos 6
- PROVISION FOR MAINTAINING AMBIENT TEMPERATURE
 - False ceiling with provision of LED lights.
 - Provision of vanishian blinds for windows.
 - Vitrified tiles flooring.
 - 4 lab cooling device (split AC (02), window AC (02)) 2 tonnes each.


(RAJIV PALIWAL)

S.O. LUCKNOW


(DR. RAJKUMAR)

D.D. SERO, LUCKNOW


(KAPIL DEV)

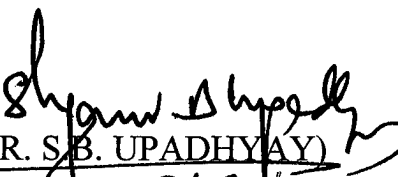
D.D. BIO, AGRA


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