

"ഭരണഭാഷ മാതൃഭാഷ"

കോളേജ് വിദ്യാഭ്യാസ ഡയറക്ടറുടെ നടപടിക്രമം

കോളേജ് വിദ്യാഭ്യാസ വകുപ്പ് - 2020-21 സാമ്പത്തിക വർഷം -" 2202-03-103-76 Development of Libraries , Laboratories and Furniture" - സർക്കാർ ആർട്സ് & സയൻസ് കോളേജുകളിലെ ബോട്ടണി വിഭാഗം ലാബുകൾക്ക് ഉയർന്ന പൊതുനിലവാരം കൈവരിക്കുന്നതിന് തുക അനുവദിച്ചു ഭരണാനുമതി നൽകി ഉത്തരവാകുന്നു.

ഉത്തരവ് നമ്പർ:P3/27494/2020/DCEതിരുവനന്തപുരം

തീയതി:20.11.2020

പരാമർശം:-1.24.06.2020ലെ P3/22109/2019/DCE നം ഉത്തരവ്

2. അക്കാദമിക സമിതി (ബോട്ടണി വിഭാഗം) സമർപ്പിച്ച പ്രൊപ്പോസൽ
- 3.07.08.2020 ലെ സർക്കാർ വർക്കിങ് ഗ്രൂപ്പ് മീറ്റിംഗിന്റെ മിനുട്സ്
- 4.GO(Rt) 1062/2020/HEDN തീയതി 20.08.2020

ഉത്തരവ്

2020-21 സാമ്പത്തിക വർഷം സർക്കാർ കോളേജുകളിലെ ലൈബ്രറികളുടെയും ലബോറട്ടറികളുടെയും വികസനത്തിനും നവീകരണത്തിനുമായി "2202-03-103-76 Development of Libraries, Laboratories & Furniture" ശീർഷകത്തിൽ 850 ലക്ഷം രൂപ വകയിരുത്തിയിട്ടുണ്ട്.

സർക്കാർ ആർട്സ് ആൻഡ് സയൻസ് കോളേജുകളിലെ സയൻസ് ലാബുകൾക്ക് ഉയർന്ന പൊതുനിലവാരം കൈവരിക്കുന്നതുമായി ബന്ധപ്പെട്ട് കോളേജുകളിലെ ലാബ് സൗകര്യങ്ങൾ വിലയിരുത്തി പ്രൊപ്പോസലുകൾ സമർപ്പിക്കുന്നതിനായി പരാമർശം (1) പ്രകാരം അക്കാദമിക സമിതിയെ രൂപീകരിക്കുകയും വിവിധ സർക്കാർ ആർട്സ് & സയൻസ് കോളേജുകളിലെ ബോട്ടണി വിഭാഗം ലാബുകളുടെ നിലവാരം ഉയർത്തുന്നതുമായി ബന്ധപ്പെട്ട് പ്രസ്തുത സമിതി പരാമർശം (2) പ്രകാരം പ്രൊപ്പോസലുകൾ തയ്യാറാക്കി സമർപ്പിച്ചിരുന്നു . പ്രസ്തുത പ്രൊപ്പോസലുകൾ പരാമർശം (3) വർക്കിങ് ഗ്രൂപ്പ് യോഗത്തിൽ പരിഗണിച്ചു പരാമർശം (4) പ്രകാരം സർക്കാർ ഭരണാനുമതി അനുവദിച്ചു ഉത്തരവായിട്ടുണ്ട്. മേൽ സാഹചര്യത്തിൽ താഴെ പറയുന്ന കോളേജുകൾക്ക് ചുവടെ ചേർത്തിരിക്കുന്ന പട്ടിക പ്രകാരം തുക അനുവദിച്ചു ഉത്തരവാകുന്നു.

Sl.No	Name of College	Amount
1	University College, Thiruvananthapuram	Rs.15,80,000/-
2	Maharaja's College, Ernakulam	Rs.14,05,000/-
3	SNGS College, Pattambi	Rs.13,12,000/-
4	Government College for Women, Thiruvananthapuram	Rs.14,90,000/-
5	Government Victoria College Palakkad	Rs.13,20,000/-

6	Government Brennen College, Thalassery	Rs.14,94,000/-
7	Government Arts & Science College , Kozhikkode	Rs.5,10,000/-
8	Government College, Kottayam	Rs.7,51,000/-
9	Government College Kasargod	Rs.4,51,000/-
10	Government College Chittur Palakkad	Rs.4,46,000/-
11	KKTM Government College, Pullut	Rs.5,54,000/-
12	Government College Madappally	Rs.5,63,000/-
13	Government Arts College Thycaud, Thiruvananthapuram	Rs.5,40,000/-
14	Government College Kariavattom, Thiruvananthapuram	Rs.4,03,000/-
15	Government Arts & Science College for Women, Malappuram	Rs.7,23,000/-
16	CKG Memorial Government College, Perambra, Kozhikkode	Rs.7,23,000/-
17	Government Arts & Science College Elanthoor, Pathanamthitta	Rs.2,20,000/-
18	BJM Government College , Chavara , Kollam	Rs.2,20,000/-
19	Government College Kodenchery , Kozhikkode	Rs.2,20,000/-
Total : Rs.1,49,25,000/- (Rupees One Crore Forty Nine Lakh and Twenty Five Thousand Only)		

പദ്ധതി വിഹിതം തുക ചെലവഴിക്കുമ്പോൾ നിലവിലുള്ള നിയമങ്ങളും സർക്കാർ ഉത്തരവുകളും കർശനമായി പാലിക്കേണ്ടതും അനുവദിക്കുന്ന തുക അനുബന്ധമായി ചേർത്തിരിക്കുന്ന പട്ടികയിലെ ഉപകരണങ്ങൾ വാങ്ങുന്നതിന് മാത്രമാണ് വിനിയോഗിക്കുന്നതെന്ന് ബന്ധപ്പെട്ട സ്ഥാപന മേധാവികളും പരാമർശം (1) അക്കാദമിക് സമിതിയും ഉറപ്പ് വരുത്തേണ്ടതുമാണ്. പ്രസ്തുത ഉപകരണങ്ങളുടെ പർച്ചേസുമായി ബന്ധപ്പെട്ട് പരാമർശം (1) അക്കാദമിക് സമിതിയുടെ നിർദ്ദേശം സ്വീകരിക്കേണ്ടതാണ്. പ്രസ്തുത പർച്ചേസ് പൂർത്തീകരിച്ച് 2021 മാർച്ച് 31 ന് മുൻപായി വിനിയോഗ സാക്ഷ്യപത്രം ടി കാര്യാലയത്തിൽ ലഭ്യമാക്കേണ്ടതാണ്.

പ്രസ്തുത തുക നടപ്പ് സാമ്പത്തിക വർഷം "2202-03-103-76 Development of Libraries, Laboratories & Furniture " ശീർഷകത്തിൽ നിന്നും വഹിക്കേണ്ടതാണ്.

Approval Valid

Digitally Approved By
ഗീത.എ ഐ.എ.എസ്സ്
Date: 20.11.2020
Reason: Approved

Sd/-
ഗീത.എ ഐ.എ.എസ്സ്
കോളേജ് വിദ്യാഭ്യാസ ഡയറക്ടർ (ഇൻ
ചാർജ്)
0471-2303548
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പകർപ്പ്,

1. ഡോ.ബോസ്റ്റോ ലോറൻസ് (കൺവീനർ , അക്കാദമിക് സമിതി - ബോട്ടണി വിഭാഗം)
അസ്സോസിയേറ്റ് പ്രൊഫസർ , ഗവ ആർട്സ് കോളേജ് , തിരുവനന്തപുരം
2. ബന്ധപ്പെട്ട കോളേജ് പ്രിൻസിപ്പാൾമാർ
- 3.ബഡ്ജറ്റ് (കെ) സെക്ഷൻ
- 4.നടപ്പ് ഫയൽ / കരുതൽ ഫയൽ

**COLLEGE WISE ANALYSIS OF THE INFRASTRUCTURE AND
ESTIMATE ON THE REQUIREMENTS**

UNIVERSITY COLLEGE, TRIVANDRUM

Equipments	No. Required	Specifications	Estimated cost
Compound Microscope with LED Lighting	20	See Appendix-1	400000
Visible spectrophotometer	1	See Appendix-1	60000
Camera attached trinocular microscope with Image analyser software	12	See Appendix-1	400000
PAGE Apparatus and Horizontal electrophoretic Apparatus (Agarose etc.)	1	See Appendix-1	180000
Refrigerator	2	265 liter	65000
PCR	1	See Appendix-1	250000
Micropipettes	1set	See Appendix-1	100000
UV Transilluminator	1	See Appendix-1	125000
TOTAL			1580000

MAHARAJA'S COLLEGE ERNAKULAM

ITEM	Number	SPECIFICATION	Price RUPEES
Compound Microscope with LED Lighting	25	See Appendix-1	500000
PAGE Apparatus and Horizontal electrophoretic Apparatus (Agarose etc)	1	See Appendix-1	180000
UV Transilluminator	1	See Appendix-1	125000

COOLING MICROCENTRIFUGE	1	See Appendix-1	250000
PCR	1	See Appendix-1	350000
TOTAL			1405000

SNGS COLLEGE PATTAMBI

Equipments	No. Required	Specifications	Estimated cost
Hot Air Oven	1	Up to 250°C temperature Precise and even heat distribution Noise-less fan Safe for operator and samples Double walled construction Removable stainless steel shelves Over heat and over current protection Forced air circulation Ventilation of gases Imported heating element	12000
Visible Spectrophotometer	1	See Appendix-1	100000
Compound Microscope with LED Lighting	35	See Appendix-1	700000
Camera attached Research microscope with Image analyser software	1	See Appendix-1	500000
TOTAL			1312000

GOVT. WOMENS COLLEGE, TVPM

ITEM	Quantity	SPECIFICATION	Price RUPEES
GEL DOCUMENTATION SYSTEM	1	See Appendix-1	450000
MICROSCOPE WITH LED ILLUMINATION	1	See Appendix-1.	200000
MICROPIPETTES (COMPLETE SET)	1 set	See Appendix-1	100000
STEREO MICROSCOPE WITH CAMERA ATTACHMENT	1	See Appendix-1	250000
FREEZER (-20)	1	See Appendix-1	60000
AUTOCLAVE	1	See Appendix-1	100000
PLATFORM SHAKER		See Appendix-1	30000
WATER BATH WITH TEMP CONTROL	1	See Appendix-1	50000
U V-VISIBLE SPECTROPHOTOMETER	1	See Appendix-1	250000
TOTAL			1490000

GOVT. VICTORIA COLLEGE, PALAKKAD

Item	Number	Specification	Cost
Compound microscopes with rechargeble LED light illumination	30	See Appendix-1	600000
Cooling centrifuge	1	See Appendix-1	250000
Horticultural tools	0	Compleate set	10000
PCR	1	See Appendix-1	250000
Vortex mixer	1	See Appendix-1	30000
PAGE Apparatus and Horizontal electrophoretic Apparatus (Agarose etc)		See Appendix-1	180000
TOTAL			1320000

GOVT. BRENNEN COLLEGE, DHARMADAM, THALASSERY

Item	No. Required	Specification	Amount
BOD incubator	1	See Appendix-1	40000
Compound Microscope with LED Lighting (25 No.)	25	See Appendix-1	500000
Colorimeter	1	See Appendix-1	4000
Electronic balance	1	See Appendix-1	150000

PAGE Apparatus and Horizontal electrophoretic Apparatus (Agarose etc)	1	See Appendix-1	180000
Gel Documentation system/ Transilluminator	1	See Appendix-1	450000
Horticultural tools	1	Complete set	10000
Visible Spectrophotometer	1	See Appendix-1	60000
Autoclave 15-45 Litres Horizontal	1	See Appendix-1	100000
TOTAL			1494000

GOVT ARTS & SCIENCE COLLEGE, KOZHIKODE

ITEM	Quantity	SPECIFICATION	Price RUPEES
MICROSCOPE WITH LED ILLUMINATION	10	See Appendix-1	200000
Cooling centrifuge	1	See Appendix-1	250000
Deep freezer - 20	1	See Appendix-1	60000
TOTAL			510000

GOVERNMENT COLLEGE KOTTAYAM, NATTAKOM

ITEM	Quantity	SPECIFICATION	Price RUPEES
Compound Microscope with LED Lighting	10	See Appendix-1	200000
Camera lucida	1	See Appendix-1	2000
Deep freezer - 20	1	See Appendix-1	60000
Digital Photoelectric Colorimeter	1	See Appendix-1	16000
PAGE Apparatus and Horizontal electrophoretic Apparatus (Agarose etc)	1	See Appendix-1	180000
Horticultural tools	1	Complete set	10000
Hot Air Oven		See Appendix-1	40000
Table top Cooling Centrifuge	1	See Appendix-1	100000
pH meter	1	See Appendix-1	16000
UV transilluminator	1	See Appendix-1	125000
Pointer eyepiece		10x	2000
TOTAL			751000

GOVT. COLLEGE, KASARAGOD

Item	No. required	Specification	Price
Autoclave	1	See Appendix-1	40000
Cooling centrifuge(Table top)	1	See Appendix-1	100000
Deep freezer - 20	1	See Appendix-1	60000
Electronic balance 4 digit	1	See Appendix-1	50000
Electrophoresis - AGE with power pack and accessories	1	See Appendix-1	60000
UVTrans illuminator		See Appendix-1	125000
pH meter	1	Measurement PH & ORP Display 3 1/2 Digit LED Range Resolution 0 -14.00 pH 0 ± 1999 mv 0.01 pH, 1mV Accuracy + 0.01 pH, + 1mV Temperature Compensation Auto + Manual 0to100°C Slope Control 80 to 120%	16000
TOTAL			451000

GOVT. COLLEGE CHITTUR, PALAKKAD

Item	No. Required	Specification	Amount
Autoclave (Vertical)		See Appendix-1	40000
Digital Photoelectric Colorimeter	1	See Appendix-1	16000
Cooling centrifuge (TableTop)	1	See Appendix-1	100000
Deep freezer - 20	1	See Appendix-1	60000
Electronic balance	1	See Appendix-1	50000
PAGE Apparatus and Horizontal electrophoretic Apparatus (Agarose etc)	1	See Appendix-1	180000
TOTAL			446000

KKTM GOVT. COLLEGE, PULLUT

Item	No. Required	Specification	Amount
Compound Microscope with LED Lighting	15	See Appendix-1	300000
Cooling centrifuge	1	See Appendix-1	100000
Digital Photoelectric Colorimeter	1	See Appendix-1	4000
Double Distillation unit	1	See Appendix-1	100000
Electronic balance 4 digit	1	See Appendix-1	50000
TOTAL			554000

GOVT. COLLEGE, MADAPPALLY

Item	No. Required	Specification	Amount
Compound Microscope with LED Lighting	5	See Appendix-1	100000
Autoclave (Horizontal / Vertical)	1	See Appendix-1	40000
Camera lucida	1	Mirror type, to trace the image of a microscopic object on a paper. A beam splitter prism of optical glass is positioned over the eyepiece with a large size swinging mirror which causes the image of the object to appear	2000

		on a plane surface enabling its tracing	
Digital Photoelectric Colorimeter	1	See Appendix-1	16000
Table top cooling Centrifuge	1	See Appendix-1	100000
PAGE Apparatus and Horizontal electrophoretic Apparatus (Agarose etc)	1	See Appendix-1	180000
UV transilluminator	1	See Appendix-1	125000
Total			563000

GOVT. ARTS COLLEGE, THYCAUD, TRIVANDRUM

Items	Number	Specification	Amount
Stereo zooming Microscope with camera attachment and image analyser software	1	See Appendix-1	300000
Compound Microscope with LED lighting	12	See Appendix-1	240000
Total			540000

GOVT. COLLEGE, KARIAVATTOM, TRIVANDRUM

Item	Number	Specification	Price
Dissection microscope 10 numbers	10	15 X eye piece	39000
Trilocunar compound microscope with attached Computer and sotware	1	See Appendix-1	350000
Camera lucida 1 number	1	Mirror type, to trace the image of a microscopic object on a paper. A beam splitter prism of optical glass is positioned over the eyepiece with a large size swinging mirror which causes the image of the object to appear on a plane surface enabling its tracing	2000
Ocular stage Micrometer	1	10mm linear scale featuring 100 divisions.Good quality glass	2000
TLC preparing set with applicator and board 1 number	1	Plate size: max. -200X200mm. Automatic syringe height adjustments for different types of plates. Plates of any size- Precoated Al to Hand Made glass plates can be used. 100ul & 500ul syringes can be used. Resolution 0.1 µl N2 spray gas with 1-1.5 lit/min gas consumption. Easy selection of delivery speed of the sample. Band Length up to 190 mm.	10000
TOTAL			403000

GOVT.ARTS & SCIENCE COLLEGE FOR WOMEN, MALAPPURAM

Items	Number	Specification	Amount
Compound Microscope with LED Lighting	10	See Appendix-1	200000
Dissection Microscopoe	10	with 15x objective	30000
Horticultural Equipments(Complete set)	1	1set	10000
Camera lucida	1	Mirror type, to trace the image of a microscopic object on a paper. A beam splitter prism of optical glass is positioned over the eyepiece with a large size swinging mirror which causes the image of the object to appear on a plane surface enabling its tracing	2000
Tabletop cooling Centrifuge	1	See Appendix-1	50000
Deep freezer - 20	1	See Appendix-1	60000
Digital Photoelectric Colorimeter	1	See Appendix-1	16000
Electronic balance	1	See Appendix-1	50000
PAGE Apparatus and Horizontal electrophoretic Apparatus (Agarose etc)	1	See Appendix-1	180000
UV transilluminator		See Appendix-1	125000
Total			723000

C.K.G. MEMORIAL GOVT. COLLEGE PERAMBRA, KOZHIKODE

Items	Number	Specification	Amount
Compound Microscope with LED Lighting	10	See Appendix-1	200000
Dissection Microscopoe	10	with 15x objective	30000
Horticultural Equipments(Complete set)	1	1set	10000
Camera lucida	1	Mirror type, to trace the image of a microscopic object on a paper. A beam splitter prism of optical glass is positioned over the eyepiece with a large size swinging mirror which causes the image of the object to appear on a plane surface enabling its tracing	2000
Tabletop cooling Centrifuge	1	See Appendix-1	50000
Deep freezer - 20	1	See Appendix-1	60000
Digital Photoelectric Colorimeter	1	See Appendix-1	16000
Electronic balance	1	See Appendix-1	50000
PAGE Apparatus and Horizontal electrophoretic Apparatus (Agarose etc)	1	See Appendix-1	180000
UV transilluminator		See Appendix-1	125000
Total			723000

GOVT. ARTS AND SCIENCE COLLEGE, ELANTHOOR

Items	Number	Specifications	Amount
Compound Microscope	20	10X- objective 10,40,100eye piece	160000
Dissection Microscopoe	10	15x eyepiece	50000
Horticultural Equipments(Complete set)	1	1set	10000
Total			220000

BJM GOVT.COLLEGE CHAVARA,KOLLAM

Items	Number	Specifications	Amount
Compound Microscope	20	10X- objective 10,40,100eye piece	160000
Dissection Microscopoe	10	15x eyepiece	50000
Horticultural Equipments(Complete set)	1	1set	10000
Total			220000

GOVT. COLLEGE, KODENCHERY,KODENCHERY.P.O, KOZHICODE,PIN:673581

Items	Number	Specifications	Amount
Compound Microscope	20	10X- objective 10,40,100eye piece	160000
Dissection Microscopoe	10	15x eyepiece	50000
Horticultural Equipments(Complete set)	1	1set	10000
Total			220000

Appendix 1

Suggested specifications for the instruments

1. **Compound Microscope with LED Lighting:** Binocular microscope with LED illumination, objectives 10x,40x and 100x,eye piece- WF10x/18mm;Single mold aluminum die-cast ;Co-axial coarse and fine focusing on ball drive system for smooth operation. Semiplan / Achromat imported optical parts, Mechanical stage, BRASS rack and pinion stage drive. Fine drive movement 0.3mm/rotation

2. **Camera attached trinocular microscope with Image analyser software**

Imported, reputed brand.

It should have low positioned co-axial coarse and fine focus knobs, The stand should have a built-in stabilized power supply for 24V/60W illuminator with mains connection to 110-240V, 50/60Hz. 10W LED illumination. 30degree Trinocular tube. Interpupillary adjustment from 55 to 75 mm or better, Binocular tube with swiveling for comfortable two position height observations. Wide field 10x/ 22mmFOV mm or more with focusable front lens with provision to insert graticules including rubber eyecups. Microscope should have revolving nosepiece with precision click stops to accommodate 5 objectives. **A Plan 5x/0.12NA,A plan 10X/0.25NA, A Plan 40x/0.65 and A Plan 100xOil/1.25NA.**

Should have Condenser0.9 to 1.25NA or Better All the objectives should be of Anti-fungal treated.

Dual layered mechanical stage with 220x150mm or better Digital Microscopy camera Should be supplied with 8MP , Ultra HD 4K resolution camera, Exposure time .06mS to 1S.

Frame Rate should be 30fps or better, Should have HDMI,USB3, microSD and Ethernet Interface

It Should Have passing cooling system, Camera should have Active denoising, active sharpening and HDR Image enhancement Functions. Camera should have settings such as white balance, exposure time, and image enhancement functions are done automatically. Without needing additional imaging software or a computer.

0.5 X c mount should be supplied with camera, Should be Supplied with Measurement Software capable to do measurement , area ,diameter and Z stacking etc.

Microscope ,camera and software should be from the same manufacturer

3. **STEREO MICROSCOPE WITH CAMERA ATTACHMENT**

Imported Trinocular Stereo Zoom Microscope with camera

Optical Zoom 5:1, Eyepiece pair 10x, Continuous magnification from 8x to 40x, LED illumination system with dimmer for Incident and Transmitted light. Bright field and Darkfield

facility, Variable intensity in different combinations, Viewing Angle 60°, Max. resolution 200Lp/mm, long life LED light source, Built in Stabilized power supply 100- 240 V. Complete with high performance 8 Megapixel/higher CMOS camera, USB3/HDMI and LAN interface, Capability to produce live image on PC monitor, USB with application software for Image Analyser, calibration, linear Measurements, Insertion of micron bar, insertion of annotations, Z stacking provision etc..

4. Electrophoresis system

Vertical Electrophoresis System 1 No.

Number of gels - 2 Gels, Gel size (W x L) - 8.3 x 7.3 cm, Should have sample loading guide for easy loading of samples, Casting frames with simple cam closure for providing precise alignment on any flat surface, side-by-side casting stand, Suitable plastic combs

Should be supplied with SDS PAGE Starter Kit , Protein Marker and other necessary consumables.

Mini Horizontal Electrophoresis system 1 No

size of 7x10cm with safety lid with sample throughput of 8-30

UV transparent gel tray of size 7x 7 with integrated fluorescent ruler.

tape free gel casting module for leak free operations.

A system should include two 1.5mm 8- & 15-well fixed height combs.

option for adjustable height combs with comb holders.

Power Supply

Output range (programmable): 10–300 V, fully adjustable in 1 V steps 4–400 mA, fully adjustable in 1 mA steps 75 W maximum

Type of output: Constant voltage, constant current with automatic crossover

Output terminals: 4 pair recessed banana jacks floating in parallel

Timer: 1–999 min, fully adjustable

Pause/resume run function

Operating conditions: 0–40°C; 0–95% humidity in the absence of condensation, overload/short circuit protection, input line protection, auto power-up after power failure

Input protection: Fuse on both hot and neutral

Input power (actual): 198–264 VAC, 50 or 60 Hz

5. PCR :

Gradient PCR Thermal cycler. Sample capacity of 96x0.2ml tubes, 0.2ml tube strips or universal or standard 1x96-well plate of 8x12 format with six or more Peltier heating and cooling.

True gradient capability with Dynamic ramping with a temperature differential range of 1-25degC across the rows. interface - intuitive >5.7" (14.5 cm) touch screen which can displays graphics in high resolution for easy programming. Should be capable of running reaction volumes from 1-100ul. Ramp rate of >4 degC/second.

Temperature range of 4-100 deg C. Gradient range of 30-100 deg C Temperature accuracy and uniformity of ± 0.5 deg C

Memory of >500 programs with further expansion through a USB Flash drive for transfer of files.

Quick boot up time of not more than 1 min.

Built in library of standard protocols for long PCR, fast PCR, reverse transcription PCR etc.

Feature of "Instant Incubation" to keep samples at constant temp for ligation and restriction digests. Should have power save mode.

Should have service support based in Kerala from manufacturer for the quoted model , support document to be submitted in manufacturer letter head.

Should come with suitable UPS for power back up

6. Gel Documentation System

The system should be capable of supporting fluorescence and colorimetric detection methods. ü

Maximum sample size 28x36cm; image area 25x21cm; with 3 modes of illumination control (trans-UV, trans white and epi-white)

Camera resolution should be 3-4 mega pixels; Effective resolution between 12 – 15 megapixels

Upgradable to chemiluminescence

Desktop computer and software for image analysis and storage. Software with analytical features.

UPS 2KV – online

7. UV Transilluminator

Imported. Gels stained with both ethidium bromide and Sybr® Green could be viewed on a background free transilluminator with the naked eye more easily. The Long Life filter should provides a high-contrast background, enabling viewing of even the faintest bands.

Filter frame made of high-quality stainless-steel. The body should be epoxy painted and resistant to the chemicals and unit designed prevents liquids from leaking in to the interior.

Filter Size: 21 x 26 cm, Wavelength: 312 nm, 5 UV Tubes or higher of 8 Watt, Fast startup blink free tubes. UV Protection cover: Adjustable
Warranty 3 years and 3 year

8. Micropipettes

Imported, Fully Autoclavable

0.1-2.5 ul, 2-20 ul, 20-200 ul, 100-1000 ul; Spring Loaded Tip Cone: Improved ergonomics, Tight fit to the tip. Control Button: Very low operating force, Ejector: Very low operating force, positioned for perfect ergonomics. Volume Display: 4 Digits, Magnifying shape.

THREE YEARS WARRANTY

9. Deep Freezer

Horizontal / Vertical Deep freezer. Temperature range 25°C to -20°C ; Direct Cooling Type; Microprocessor controlled system. ; Capacity 300 Lit or above; LED Display; ; CFC- free refrigerant. ; Noise level less than 45 dB. ; Alarms for systems malfunction over and under temperature & sensor error ; Equipment should CE Certified/Indian standard certification. ; Warranty period to be mentioned ; AMC charges to be indicated

10. AUTOCLAVE

Chamber volume (Total/Nominal) - 24-35 L; Model - Fully automatic; Timer - Yes (enabled); Sterilization class - Class N, Sterilization temp - 121 degrees; 134 degrees; Drying procedure - Heating dry, Display - LED display; Control precision - Temp - 1 degree; pressure - 0.1 bar, Safety system - Hand lock door; relief valve in case of over pressure; pressure or temperature over load protection; Alarm for system failure; finish remaining

Tray holder - 3 pieces SS trays on SS shelves; Chamber - SS 304 unibody structure; Max. working pressure: 2.3 bar; Min. working pressure: 1.1 bar; Max. temp: 145 degrees; Ambient temp - 5-40 degrees; Noise < 50 db; Power supply AC 110/220V +/- 10% 60/50Hz

Chamber size 245*400 (minimum); Certification CE certified

11. PLATFORM SHAKER

Low Speed Orbital Shaker includes a 30 x 30 cm platform and is ideal for staining and destaining gels, washing blots and general mixing applications. Speed can be set from 3 to 60 rpm and the timer can be set for up to 2 hours or for continuous operation. Simple analog control with easy-turn knobs. 19mm orbit for blotting, gel staining and general mixing

Safe for cold room and incubator use.

12. WATER BATH WITH TEMP CONTROL

Should have a double walled construction. The inner chamber and top lid should be made of stainless steel. The space between the two walls should be packed with

thick glass wool.

Should provide with a microprocessor based variable digital temperature controller with digital display. Working temperature should be from ambient to 80°C having an accuracy of +/- 1°C .Should have an approximate inner chamber dimension of 450mm x 300mm x 175mm.

Should have LED display and monitor alarm facility too.

13. Vortex mixer

Sturdy design, Variable, analog speed control, Continuous or touch mode operation
Compact, rugged construction, Heavy metallic base fitted with rubber vacuum feets which prevents the movement of shaker during use. Maximum speed 3000 RPM, To Work on 220Volts 50 HZ A.C.

14. BOD Incubator

Temperature sensitivity +/- 0.1°C

Temperature uniformity +/- 0.5° C

Temperature control using PID or equivalent control device Programmable:

- Profile with different ramp up, ramp down and soak features

- Profile containing >= 8 feed points

- Cycling feature for any number of times

Data acquisition port and cable for

PC/laptop communication Yes. To feed temperature cycles and record time vs. temperature data from BOD sensors

Independent overheat protection system Installed with separate temperature sensor & buzzer alarm

Maximum heating rate 5 0C per minute

Minimum heating rate 2 0C per hour

Maximum cooling rate 5 0C per minute

Minimum cooling rate 2 0C per hour

Air circulation Forced type, minimum 2 fans

Humidity control for chamber Installed dehumidifier for <50% RH

Withstand continuous operation Yes, more than six months

Inner chamber volume Minimum 2 cubic feet with 4 shelves

Inner chamber wall Stainless steel, appropriately insulated

BOD outer wall Rust, corrosion proof

Lock and buzzer alarm for door Yes

Calibration and operating manual Yes

15. Electronic balance

Accuracy 0.1 mg

Capacity 0.1 mg to 230 gm

Pan Size 90 mm

Calibration Internal

Display LCD with Back Light

16. Refrigerated Centrifuge

Control - Microprocessor with Variable Frequency Drive, Max. Speed- >14000 RPM, Brushless induction motor, Digital LCD display, User defined RPM/RCF, Acceleration, Deceleration, Timer & Temperature with >25 Programs, Acceleration/ Deceleration 12 - 510 Secs, Timer 1-120 min, Dynamic brake, CFC free cooling -20 to +40, Safety - Centrifuging chamber stainless steel. powered lid locking. pre- cooling function (Fast Cool) and stand-by cooling, Lid Lock & Imbalance Protection, Gas Spring, Power supply - 230V, 50 Hz.

Rotor Heads : 8 X 50ml, 12 X 15 ml, 24 X 1.5 /2.0 ml

17. Table top centrifuge

Table top centrifuge : Microprocessor control, speed >7000 rpm. 12X 15 ml rotor head. Centrifuging chamber stainless steel. powered lid locking.

Digital display

Electronic brake, Sturdy Cabinet, Lid Lock, Imbalance Protection

Power Supply- 230V, 50 Hz

18. U V-VISIBLE SPECTROPHOTOMETER

Imported. Wavelength Range (nm) : 190-1100 ;Wavelength Accuracy ((nm) : 0.8 or better;Wavelength Repeatability (nm): 0.2 or better ;Spectral Bandwidth (nm) : 0.5 to 4.0 or better ;Photometric system: Double-beam optics ;Light Source : Xenon flash lamp /LED;Stray Light: Max. 0.005% (220 nm NaI) or better, Max. 0.005% (340,370 nm NaNO₂) or better Max. 1% (198nm KCl) or better ;Photometric Mode: Absorbance, Transmittance (%) , intensity ;Photometric Range: 0 to 3.0 Abs or better ;. Photometric Accuracy: ± 0.005 Abs at 1 Abs ;Photometric Reproducibility: ± 0.002 Abs at 1 Abs ; Wave length scanning speed : Instrument should have variable wavelength scan rate from 4000 to 0.5nm/Min with automatic selection. ; Scan/Skew Speed : Min 2500 nm/min or better ; Detector : Photo Multiplier Tube/Silicon Photo Diode Sample holder : should have reference and sample cuvette positions, should have provisions to dismantle and attach multiple capacity holders. ; Cuvettes : glass 10 nos and quartz 10 nos of variable capacities

19. Visible spectrophotometer

Optical System: grid monochromator with reference beam Wavelength range:320 - 1100 nm Bandwidth:4 nm, Wavelength Accuracy: ± 1 nm on all Holmium peaks, Wavelength repeatability: better than 0.5 nm, Photometric range:-3.3 to +3.3 Abs, Photometrical resolution/Transmission: 0.001 Abs / 0.1%, Photometric accuracy / repeatability: 0.003 Abs below 0.6 Abs 0.5

% from 0.6 to 2.0 Abs Photometrical linearity: <1% up to 2.0 Abs between 340 to 900 nm.

20. Colorimeter

Wave Length Range 400 to 700nm. Resolution 1% T, 0.01 Abs., 1 Conc., 1 K Factor
% Transmission 0 - 100% T. Absorbance 0 - 1.99 A
Concentration 0- 19999
K Factor 1 - 19999
Photo Detector Silicon Photodiode/Photo Cell
Display 16x2 line alphanumeric LCD display with backlit for %T, Abs., Conc., K Factor

21. Digital Photoelectric colorimeter:

Microprocessor Photo Colorimeter Wavelength Range (nm): 400 -700 nm. Resolution:
%T: 1, Abs: 0.01, Conc.: 0.01, KFactor: 0.01Absorbance: 0-
1.99AConcentration: 0- 19999 CPhoto Detector: Silicon Photodiode / Photo
CellDisplay: 16 x 2 line alphanumeric backlit LCD displayKeyboard: Soft
Touch Membrane Keys. Data Storage: Upto 100 Samples (0 - 99)Light
Source: 6.8 V, 0.3 Amp Tungsten LampSample System: 10 mm pathlength
matched glass test tubeFilters: 400, 450, 490, 520, 540, 570, 620, 680 nm