

OFFICE OF THE PRINCIPAL, SALIPUR AUTONOMOUS COLLEGE, SALIPUR.  
ODISHA. 754202

NOTICE

No. 260

Date 29-11-2021

Sealed quotations are invited for laboratory Equipments and Books for the Departments of Physics, Chemistry, Mathematics, Botany and Zoology under the **STAR COLLEGE SCHEME** of the **Department of Biotechnology, Ministry of Science and Technology, Govt. of India**. For details and specification please visit our website [www.salipurcollege.org.in](http://www.salipurcollege.org.in). The quotations along with PAN, GST number, IT return for last three years and work orders completed must reach **The Principal**, with the envelope superscribing the name of the concern department on or before 14<sup>th</sup> December 2021.

  
Principal,

Salipur Autonomous College,

Salipur.

Salipur Autonomous College  
Salipur

**OFFICE OF THE PRINCIPAL, SALIPUR AUTONOMOUS COLLEGE,  
SALIPUR.ODISHA. 754202.**

**A. LIST OF EQUIPMENTS TO BE PURCHASED UNDER  
DBT-STAR COLLEGE SCHEME.**

**PHYSICS**

1. Maxwell needle with accessories. (i. Hollow cylindrical brass tube of length 60 cm with two solid and two hollow each having 15 cm length. ii. Stop clock , Least count 1 sec.)
2. LCR meter with frequency oscillator. ( Series and Parallel resonance)
3. R. C. circuit app. (With varying EMF, Variable Power supply)
4. Raleigh Bridge.
5. Norton's theorem app. (DC Circuit)
6. Thevenin's theorem apparatus.
7. D. C. Regulator Dual power supply (0-15 V, 1amp).
8. D. C. Regulator Dual power supply (0-30 V, 2amp).
9. Digital Storage Oscilloscope (Dual channel & Dual trace).
10. Function Generator (1 Mega Hz.) (i. Impedance – 50E ii. Wave form sine, triangle and square wave)
11. Digital multimeter (with Capacitance & frequency measurements).
12. Thermal Conductivity apparatus. (Searl's method).
13. PN Junction diode characteristic apparatus. (With DPM for current, DPM for voltage)
14. Zener diode characteristic apparatus.
15. R. C. Coupled amplifier with frequency variation.( With Function generator with frequency range up to 50 KHz.)
16. Colpitt oscillator. (RF (L-C) Oscillators, Digital frequency counter)
17. Planck's Constant by Black Body radiation.
18. Lissajous figures apparatus with accessories. ( i. Cathode Ray Oscilloscope-dual channel, dual trace )
19. e/m by bar magnet (Braun's tube).
20. Calendar & Barne's apparatus. (i. Battery Eliminator – upto 12 volt (variable) ii. D.C. Ammeter (0-2A) iii. D.C. Voltmeter (0-15V) )
21. Cathode Ray oscilloscope (Dual channel & Dual trace).
22. He-Ne LASER source with single & double slit. ( i. 1 Mw with power supply ii. Wavelength 670 nm & 750 nm)
23. Trainer Kit for digital electronics (All gates, adder subtracter, Flip flop, op-amp). (i. All gates-OR,AND, NOR, NOT, NAND. ii. Adder (Full adder, half adder) iii. Subtracter iv. Flip-flop (JK, RS, etc) v. op-Amp (inverting, Non inverting, differentiator, Integrator) vi. Dual power supply (-5-0-+5) (-15-0-15)
24. Hall Effect apparatus ( i. Electromagnet 5KG ii. Hall probe Germanium crystal N-type (Extra Ge Crystal N-type – 10/12 mm-length, 4/5 mm breadth, 1/2 mm thickness)

25. Four Probe apparatus (i. Four Probe set-up for resistivity and band gap measurement of semiconductor samples)
26. Micro wave Test Bench (i. Klystron based oscillator/ Gunn based for reflection and refraction.)

## CHEMISTRY

1. Digital pH meter
2. Digital Colorimeter
3. Digital Potentiometer
4. Digital Conductivity meter
5. Paper Chromatography kit
6. Water & soil analysis KIT (8 parameter)
7. Lakhan Pal viscometer
8. Digital Flame photometer

### 1. Technical Specification of Digital pH meter

<b>pH</b>	
Range	-2.000 to 20.000 pH
Resolution	Selectable 0.1, 0.01, 0.001 pH
Accuracy	$\pm 0.002$ pH $\pm 1$ digit
Read Out	128 x 64 dots Graphical LCD Display
Calibration	Auto & Manual with 5-Point Calibration
Auto Buffer Recognition	1.680, 4.000, 7.000, 9.200 & 12.450 pH or User Defined
Relative Stability	$\pm 0.002$ pH/Hour
Temp. Compensation	-5 to 110°C Auto/Manual
<b>mV</b>	
Range	0 to $\pm 1999.9$ mV
Resolution	0.1 mV & 0.01 mV
Accuracy	$\pm 0.1$ mV $\pm 1$ digit

<b>Temperature</b>	
Range	-5 to 110°C
Resolution	0.1°C
Accuracy	±0.1°C
<b>Sensor</b>	Semi Conductor Type
<b>Power Supply</b>	230V ± 10% AC
<b>Printer Interface</b>	External Serial RS 232 Dot Matrix Printer Interface
<b>Accessories</b>	Combination pH Electrode, Temperature Probe, Buffer Tablets 4 pH & 7pH, Electrode Stand

## 2. Technical Specification of Digital Colorimeter

Range	400 ~ 700 nm
Detector	Silicon Photodiode
Accuracy	+ 0.01 O.D.
Stability	+ 0.02 O.D. Per Hour
Light Source	Highly Accurate Laser Source
Volume	1 ml. minimum
<b>Dimension</b>	<b>L 210 X B 160 X H 80 mm (approx.)</b>
Battery Backup	6 V Ni CD Re-chargable Battery
Display	Dual Digital Display
Display Model	Absorbance & Wavelength
Filter Wavelength	400 nm, 430 nm, 500 nm, 520 nm, 540 nm, 580 nm, 600 nm, 620 nm, 680 nm
Filters	Built in 9 Digital filters 30,000 hours Life

## 3. Technical Specifications of Digital Potentiometer

Auto Range:-	0 to ± 1999 mV
Resolution:-	0.1 mV
Repeatability:-	± 1 mV
Accuracy:-	± 1 mV ± 1 Digit
Operating Temp.:-	10 to 45 °C
Display	LED Display
Accessories	ORP Electrode Temperature Probe Electrode Stand Operation Manual Dust Cover 12V DC Adapter
Power Supply	230V, ± 10% AC, 50 Hz

#### 4. Technical Specifications of Digital Conductivity meter

Display	Alphanumeric LCD
Measurement	Conductivity & Temperature
Range	Five Ranges: - 0-200 $\mu\text{S}/\text{cm}$ , 0-2 $\mu\text{S}/\text{cm}$ , 0-20 $\mu\text{S}/\text{cm}$ , 0-1000 $\mu\text{S}/\text{cm}$
Range Selection	Automatic in 5 Auto Ranges
Accuracy Cond. Temp.	$\pm 0.5\%$ FS, $\pm 1$ Digit Temp. $\pm 0.1^\circ\text{C} \pm 1$ Digit
Temperature	Automatic 0-50 $^\circ\text{C}$
Cell Constant	Adjustable
Conductivity Cell	Platinum DIP Type
Resolution Cond. Temp	0.1 S/cm, 0.1 $^\circ\text{C}$
Power Supply	12V DC Adapter (230V $\pm 10\%$ AC, 50 Hz)
<b>Accessories</b>	<ul style="list-style-type: none"> <li>• Conductivity Cell</li> <li>• Temperature Probe</li> <li>• Operation Manual</li> <li>• Dust Cover</li> <li>• Conductivity Cell Stand</li> <li>• 12V DC Adapter</li> </ul>

#### 5. Technical Specifications for Water & soil analysis KIT (8 parameters)

<b>pH Measurement</b>	Range : 0-14 pH Resolution : 0.01pH Accuracy : + 0.01 pH ( Relative) Temp. Compensation: Automatic with Pt-100 Probe & Manual By Keys Buffer Recognition: 4.00, 7.00 & 9.20 ( Automatic) Calibration : Automatic & Manual - 2 Point
<b>Conductivity Measurement</b>	Range : 0-1000 mS/cm Range Selection : Automatic Resolution : 0.01/ 0.1/ 1 uS/cm or mS/cm as per Range No. of Ranges : Six Accuracy : + 0.5% Temp Compensation : Automatic with Pt-100 Probe

	<p>Ref. Temperature : 25°C/20 degree C (Prog.)  Temp. Co-efficient : 0-4% Adj.  Cell Constant : 0.05 to 2.0 Adj.</p>
<b>SALINITY MEASUREMENT</b>	<p>Range : 0-200ppt in 5-Ranges - Automatic  Resolution : 0.01/0.1/1 ppm or ppt as per Range  Temp. Comp. : Automatic  Accuracy : + 0.5%  Salinity Factor : 0.75 By Default( Adjustable)  Cell Constant : 0.05 to 2.0 Adjustable  Ref. Temperature : 25°C/20 degree C (Prog.)</p>
<b>TDS Measurement</b>	<p>Range : 0-200ppt in 5 Ranges - Automatic  Resolution : 0.01/0.1/1 ppm or ppt as per Range  Temp. Comp. : Automatic  Accuracy : + 0.5%  TDS Factor : 0.50 By Default (Adj.)  Cell Constant : 0.05 to 2.0 Adj.  Ref. Temp. : 25°C/20 degree C (Prog.)</p>
<b>Dissolved Oxygen Measurement</b>	<p>Range : 0 to 20 ppm  Resolution : 0. 1 ppm  Calibration : Automatic  Accuracy : + 0.2 ppm + 1digit  Temp. Compensation : Automatic with Pt-100 Probe &amp;  Manual by Keys  Pressure Comp. : 0-999 mm of Hg ( Manual)  Salinity Correction: 0-20 mg/l</p>
<b>Turbidity Measurement</b>	<p>Range : 0-1000 NTU in Two Ranges  Resolution : 0.1 NTU in Lowest Range  Range Selection : Automatic  Accuracy : 3% FS 1 digit  Detector : Photodiode/Photocell  Sample System : 30 mm Clear Glass Test Tubes  Light Source : 6V Tungsten Lamp  Calibration : Manual</p>
<b>Temperature Measurement</b>	<p>Range : -20 to +200°C  Resolution : 0.1°C  Accuracy : + 0.2% + 1Digit  Input : Pt-100 Probe  Calibration : Manual</p>
<b>General</b>	<p>Display : 16 Characters X 2 Lines Alpha Numeric LCD  Display Format : Temp. and Parameter Simultaneously  Real Time Display : 24 Hour Mode With Date &amp; Time  Controls : By Soft Keys Menu Driven</p>
<b>Storage Memory</b>	<b>Up to 1000 Samples</b>
<b>Power Supply</b>	230 V +10 %, 50 Hz AC/12 V Rechargeable Battery
<b>Digital Output</b>	Serial RS-232 & Parallel Centronics

**BOTANY**

1. Model Binocular microscope
2. Model trinocular microscope
3. Electronic Digital Balance KEA 100 (100mg-1mg)
4. BM Imported electronic digital top balance
5. Digital Ph meter with electrodes
6. Genomic DNA Extract kit
7. Total RNA extract teaching
8. Agrose gel electrophoresis teaching kit
9. Gel Electrophoresis apparatus

10. BM Thin layer paper chromatography kit

11. PCR Teaching kit

12. Refrigerated micro centrifuge

SL NO	NAME OF THE ITEMS
01	<b>BINOCULAR MICROSCOPE</b> standard set complete with standard Binocular head, in-built 6V 20W halogen/LED light illuminator, with Anti Fungus Achromatic Objectives iNEA4x,10x,40x (spring) & 100x (oil, spring), paired eyepieces wide field iCWHK10x (F.N. 18) in thermocole packing, Features : Anti-fungus optics (with sealed optical parts), Interchange ability of Objectives, the Abbe condenser & the light relay system fitted with high performance aspheric lenses for bright & crisp image, Window in arm & the Ergonomic design, Illumination system through SMPS circuit etc
02	<b>TRINOCULAR MICROSCOPE</b> standard set complete with standard Trinocular head, in-built 6V 20W halogen /LED light illuminator, with Anti Fungus Achromatic Objectives iNEA4x,10x,40x (spring) & 100x (oil, spring), paired eyepieces wide field iCWHK10x (F.N. 18) in thermocole packing, Features : Anti-fungus optics (with sealed optical parts), Interchange ability of Objectives, the Abbe condenser & the light relay system fitted with high performance aspheric lenses for bright & crisp image, Window in arm & the Ergonomic design, Illumination system through SMPS circuit etc
03	ELECTRONIC BALANCE-220gm, SENSITIVITY-0.001gm CAPACITY_ 100GM Sensitivity: 0.001gm(1mg)
04	BM IMPORTED ELECTONIC BALANCE, CAP-120gm, SENSITIVITY-0.01mg Weighing Capacity : 120 g Readability : 0.1 mg Pan Size : $\phi$ 90mm Repeatability : < + 0.1 mg Linearity : < + 0.2 mg Adaptation to Ambient conditions : By selection of 1 of 4 Optimized filter levels
05	<b>DIGITAL PH METER WITH ELECTRODE</b> PH Range: 0-14PH, Accuracy: 0.01PH, Complete with combined electrode
06	<b>GENOMIC DNA EXTRACTION KIT</b> This kit is designed for fast isolation of genomic DNA from plant tissues. The kit contains a spin column for binding up to 10 $\mu$ g of genomic DNA. Nucleotides, proteins, salts and other impurities do not bind to the MX-10 Column. Purified genomic DNA can be applied in most molecular biology experiments including restriction digestion, PCR, Southern-blotting etc.
07	<b>TOTAL RNA EXTRACTION TEACHING KIT</b> RNA extraction involves cell lysis, separation of RNA from Proteins, DNA and other



	cell debris and precipitation of RNA. Plant cells are lysed using Solution-I (RNA extraction solution) and solubilize their components and denature endogenous RNase simultaneously. The RNA is separated using solution- II (RNA Present in the aqueous phase) and Precipitated using the Solution-III (Isopropyl alcohol)
08	<b>AGAROSE GEL ELECTROPHORESIS TEACHING KIT</b> HiPer® Agarose Gel Electrophoresis Teaching Kit is stable for 12 months from the date of manufacture without showing any reduction in performance. On receipt, store 1 kb DNA Ladder and samples at -20oC and the 6X Gel Loading Buffer at 2-8oC. Other kit contents can be stored at room temperature (15-25oC).

SL NO	NAME OF THE ITEMS
09	<b>GEL ELECTROPHORESIS APPARATUS WITH POWER SUPPLY</b> <b>Mini Submarine Electrophoresis Unit</b> The unit includes buffer chamber, safety lid with cable, UV transparent gel tray and one each of 1.5mm thick 8 and 15 well combs. Single piece tank is leak-proof. 7x7cm Gel can be conveniently cast in the tank itself using the casting gates provided. Spirit level is provided.  <b>POWER SUPPLY FOR ELECTROPHOROSIS APPARATUS</b> <b>Specifications</b> Input: 220V AC, 50-60Hz Output: 0-300V@0-100mA Fuse: 1Amp Timer: Digital presets Displays: Digital Volt & Current Meters
10	<b>BM THIN LAYER PAPER CHROMATOGRAPHY KIT</b> Paper Chromatography Cabinet , Ascending or Descending, made of teak wood and glass construction. It can accommodate two (troughs) and six glass rods Cabinet size : 60x30x60 cm. approx for 4 filter papers of 46x57 cm. Size
11	<b>PCR TEACHING KIT</b> Polymerase Chain Reaction (PCR) is an in vitro method of enzymatic synthesis of specific DNA fragment developed by Kary Mullis in 1983. It is a very simple technique for characterizing, analyzing and synthesizing DNA from virtually any living organism (plant, animal, virus, bacteria). PCR is used to amplify a precise fragment of DNA from a complex mixture of starting material called as template DNA.
12	<b>REFRIGERATED MICROCENTRIFUGE</b> <b>SALIENT FEATURES</b> Stable speed output Wide variety of rotors & reduction adaptors Precise temperature control up to – 8°C Pre-cooling feature Fast spin feature Calibration window on lid for speed (rpm) Brushless Induction motor with variable frequency drive ensures gentle start Microprocessor based unit with alpha numeric LCD display

	Self-diagnosis of errors Parameters setting through easy to use bi-directional encoder Inverter fault detection with auto shutdown CFC free refrigeration system 24 programme memory 3 Accelerations, 4 Deceleration profiles Choice of rpm / rcf setting & display Operating panel with feather touch keys Digital countdown timer 0-99 minutes & continuous run Last set parameters recall (Useful for repetitive analysis) Automatic door opening Log of cumulative centrifuge run time Automatic Rotor identification Safety lid interlock to prevent lid opening during centrifugation Imbalance detection & centrifugation stop with display of error Motor overload protection Gas hinge to prevent falling of door Emergency lid lock release
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## ZOOLOGY

1. Refrigerated centrifuge
2. Sandwich enz. immunoassay ELISA kit (Human)
3. Olympus Research microscope CX-LED
4. Water analysis kit
5. Olympus Halogen illumination
6. Olympus microscope CX-21; RBM
7. Gel documentation system
8. Soil Analysis kit
9. HIV ELISA kit
10. Micropipette 1-10 $\mu$ l, 10-100 $\mu$ l, 100-1000 $\mu$ l
11. Cyclomixer vortex mixer 2500rpm
12. Dry Bath incubator
13. Single door -20<sup>0</sup> C deep freezer
14. Digital weighing balance
15. Digital P<sup>H</sup> meter.

### 1. Bench- top Refrigerated centrifuge with variable rotor

#### Specification

Minimum RPM: 14000

Temperature: 4<sup>0</sup>C

**Rotor specification:**

1. 6-50(6×50ml) with reducer to fit 15ml falcon tube.
2. 24-2 (24×2ml) with reducer RE 2-02 for 0.2ml.

**2. Micropipette set**

**Specification**

Range: 1-10ul, 10-100ul, 100-1000ul

**3. -20°C deep freezer**

**Specification**

Capacity: 200L

Temp: -20°C

Single door type

**4. Cyclomixers Vortex mixer**

**Specification**

RPM: 2500 RPM

Orbital shaking, With or without finger touch

**5. Laboratory digital weighing balance**

**Specification**

Capacity: 0.001 to 600gm

Display: LCD

**6. Digital PH meter with electrode**

**Specification**

PH Range: 0 – 14

0.01 pH Resolution

Display: LED/LCD

**7. Dry bath heating block**

**Specification**

No. of block: 01

Heating range: 30° to 100°C

Block type: Suitable for 1.5ml/2ml centrifuge tube

## 8. GEL DOCUMENTATION SYSTEM

### Specification:

Type: Mini gel documentation system

Illumination: Trans-UV

Camera resolution: Minimum 15MP

## 9. Water analyzer

### Specification

Application	Laboratory Use
PH Range	0 to 14.00 pH
Resolution	0.01 pH
Accuracy	+/-0.01 pH +/-1 Digit
Measures	PH, Conductivity, TDS, Salinity, DO, Temp, Colorimeter, turbidity

## 10. Soil analyzer

### Specification

Application: Laboratory Use

Measures: Slinity, EC, PH, Conductivity, Nutrients

Product Type: Microprocessor Based, Analysis Kit

Display: LCD

Interface: RS 232 Port

## 11. HIV ELISA Kit

### Specification:

Detects p-24 antigen and antibody of HIV

Incubation time: 105 minutes

No. of Test: 96 tests

## 12. Sandwich ELISA teaching Kit

### Specification

96 tests

## 13. Olympus (MAGNUS) Microscope

### Specification

Usage/Application	Research & Pathology
Light Source	Halogen & LED
Observation tube	Binocular
Eye piece	Paired Eye piece type
Magnification	10x - 100x

#### 14. Olympus halogen illumination Microscope

##### Specification

Usage/Application	Research & Pathology
Light Source	Halogen
Observation tube	Binocular
Eye piece	lcwhk 10X (LB eyepiece 10 X), F.N. 18 mm, (anti- fungus) (x2)
Magnification	10x - 100x

#### 15. Olympus Research Microscope

##### Specification:

Model: CX21i-TR

Type: Trinocular

## **B. LIST OF BOOKS TO BE PURCHASED UNDER DBT-STAR COLLEGE SCHEME. (Please mention the edition )**

### **PHYSICS**

1. Mathematical Methods for Physicists – G. B. Arfken, H. J. Weber, F. E. Harris.
2. Mathematical Physics – H. K. Dass, Rama Verma.
3. –do- –SatyaPrakash.
4. –do- By B. S. Rajput
5. An Introduction to Ordinary Differential Equations – E. A. Coddington.
6. Mathematical Physics and Relativity – M. Das, P. K. Jena, B. K. Das.
7. Mathematical Physics –Goswami.
8. Mechanics – D. S. Mathur.
9. Feynman Lectures – Vol I,II,III – R. P. Feynman & Others.

10. Theoretical Mechanics – M. R. Spiegel.
11. Introduction to special Relativity – R. Resnik.
12. Analytical Mechanics – G. R. Fowles & G.L. Cassiday.
13. Advanced Practical Physics for students – B. L. Flint.
14. Advanced level Physics Practicals – Michel Nelson & Jon M. Ogborn.
15. Electricity, Magnetism & Electromagnetic Theory – S. Mahajan and Choudhury.
16. Introduction to Electrodynamics – D. J. Griffiths.
17. Optics – Ajay Ghatak.
18. –do- By Brijlal & Subramaniam.
19. –do- By A. B. Gupta.
20. –do- By Satya Prakash.
21. –do- By P. K. Chakraborty.
22. The Physics of vibrations & waves – H. J. Pain.
23. Vibrations and Waves – A. P. French.
24. Differential Equations – George F. Simmons.
25. Thermal Physics – A. B. Gupta.
26. Heat and Thermal Physics – Brijlal and Subramanian.
27. Thermal Physics – C. Kittal.
28. –do- By Garg, Bansal, Ghosh.
29. Heat and Thermodynamics – Satya Prakash.
30. Concept of Electronics – D. C. Tayal.
31. Electronics – V. K. Meheta.
32. Digital Principles & Applications – A. P. Malvino, Leach and others.
33. Digital Circuits & systems – Venugopal.
34. Complex variables – A. S. Fokes & M. J. Ablowitz.
35. Concepts of Modern Physics – Beiser.
36. Modern Physics – S. Gasiorowicz.
37. Introduction to quantum mechanics – Griffith.
38. Modern Physics – Murugesan.
39. Quantum Mechanics – Gupta Kumar.
40. –do- By Satya Prakash.
41. –do- By M. Das & P.K. Jena.
42. –do- By Jyotirmaye Gupta.
43. Atomic Physics – A. B. Gupta.
44. –do- By S. N. Ghoshal.
45. Nuclear Physics – S N. Ghosal.
46. Concept of Electronics – D. C. Tayal.
47. Electronic devices and circuits – R. L. Boylston.
48. Electronics – Raskhit & Chattopadhyay.
49. Quantum Mechanics – Eisberg & Resnick.
50. –do- By Powe & Craseman.
51. Classical Mechanics – Goldstein.
52. –do- By J. C. Upadhyay.
53. Introductory Nuclear Physics – Kenneth S. Kran.
54. Nuclear Physics – Kaplan, Cohen.
55. Spectroscopy – Rajkumar.

## CHEMISTRY

- 1.Principles of Inorganic Chemistry – Puri, Sharma,Kalia.
- 2.Inorganic Chemistry – Mullick, Tuli, Madan.
- 3.Physical Chemistry – Castellan G W.
- 4.Inorganic Chemistry – Shriver D E, Atkins P W.
- 5.Inorganic Chemistry – Huheey J E, Keiter E A &Keiter R L.
- 6.Stereochemistry Conformation and Mechanism – P. S. Kalsi.
- 7.Practical Organic Chemistry – Mann F G & Saunders B C.
- 8.Text book of Physical Chemistry – K. L. Kapoor.
- 9.Advance course in practical Chemistry Ghosal A, Mahapatra B, Nad A K.
- 10.Elements of Physical Chemistry – Atkins P W & Paula J .
11. Physical Chemistry – Levine I N.
- 12.Fundamentals of Inorganic Chemistry – Das Asim Kumar.
- 13.Carbohydrates- Davis B G, Fairbanks A J.
- 14.Organic Spectroscopy - Kemp W.
- 15.Organic Chemistry – T. W. Graham.
- 16.Fundamentals of Molecular Spectroscopy – Banwell C. N. &McCash E. M.
- 17.Introductory Quantum Chemistry – Chandra A. K.
- 18.Fundamentals of Photochemistry – Rohtagi Mukherjee K. K.
- 19.J. Polymer Science – Gowariker V. R. Vishvanathan N. V. &Sreedhar.
- 20.Polymer Science & Technology – P. Ghosh.
- 21.Principles of Polymers – P. Bahadur& N. V. Sastry.
- 22.Experiments in Polymer – Hundiwale G. D. and others.
- 23.Polymer Chemistry: An Introduction – Malcom P. Stevens.
- 24.Introduction to Macromolecular Science – PetrMunk and Tejraj M. Aminabhavi.
- 25.Oxford Green Chemistry – P. T. Anastas& J. K. Warner
- 26.Introduction to Green Chemistry – Kumar V.
- 27.Biochemistry – Berg J M. Tymoczko J L &Stryer.
28. –do- By Talwar G P. &Srivastava.
- 29.Industrial Chemistry – Sharma B K. & Gaur H.
- 30.Engineering Chemistry – P. C. Jain, M. Jari.
- 31.Industrial Chemistry – E. Stocchi.
- 32.Pradeep's Physical Chemistry Vol I, II - S. C. Khetrapal.
- 33.Physical Chemistry – R. G. Mortimer.
34. –do- By Bali D. W.
35. –do- By Engel T &Reio P.
- 36.Organic Chemistry – Clayden J, Greeves N, Warren S, Wothers P.
- 37.Pradeep's Organic Chemistry Vol I & II – S. N. Dhawan
- 38.Organic Chemistry – Morrison R. T., & Boyd R. N.
- 39.Advanced Organic Chemistry – Bhal&Bhal.
- 40.Organic Chemistry – Graham Solomons, T. W.
- 41Pradeep's Inorganic Chemistry Vol I & II- Universal Book seller.
- 42.Concise Inorganic Chemistry – J. D. Jee.
- 43.Practical Inorganic Chemistry – GulatiShikha, Sharma G &Monocha S.
- 44.Practical Physical Chemistry – Khosla B. D, Garg V. C &Gulati A.

45. Practical Physical Chemistry – Viswanandhan B & Raghavan P. S.
46. Practical Organic Chemistry – F. G. Mann & B. C. Saunders.
47. –do– By Furniss B. S, Hannaford A. J, Smith P. W. G, Tatchell A. R.
48. Vogel's Quantitative Chemical Analysis – Mendham J.
49. A Textbook of Quantitative Inorganic Analysis – A. I. Vogel
50. Principles of Physical Chemistry – Puri, Sharma, Pathania
51. Organic Chemistry Vol I & II – I. L. Finar.
52. Text Book of Practical Organic Chemistry – A. I. Vogel.
53. Stereochemistry of Carbon compounds – E. L. Eliel.
54. Comprehensive Practical Organic Chemistry: Preparation and Quantitative Analysis – Ahluwalia V K, & Aggarwal R.
55. Physical Chemistry – G. W. Barrow
56. Text Book of Organic Chemistry – P. S. Kalsi
57. Natural Product Chemistry – Singh J, Ali S M, & Singh J.
58. Principles of Biochemistry – Nelson D L, Cox M M, and Lehninger A L.
59. Text Book of Polymer Science – F. W. Billmeyer.
60. Green Chemistry Experiment: A monograph – Sharma R K, Sidhwani I T & Chaudhari M K I K.
61. March's Advanced Organic Chemistry – Michael B. Smith.
62. Spectroscopy of Organic Compounds – P. S. Kalsi.
63. Organic Reactions and Their Mechanisms – P. S. Kalsi.
64. Organic Chemistry – Paula Yurkai Bruice.
65. Fundamentals of Organic Chemistry – John McMurry.
66. Pathway to Organic Chemistry Structure and Mechanism – P. Bhattacharjee.
67. Natural Products Vol I & II – O. P. Agarwal.

## MATHEMATICS

1. CALCULUS, 10<sup>TH</sup> Ed. BY H. ANTONI, I. Bivens and S. Davis John Wiley and sons(Asia) P.Ltd. Singapore. 2002
2. Differential Calculus By Shantinayakan, P.K..Mittal S.Chand & Co Pvt. Ltd.
3. Integral Calculus By Shantinayakan, P.K..Mittal S.Chand & Co Pvt. Ltd.
4. Calculus By G.B. Thomas & R.L. Finney Pearson Education, Delhi, 2005
5. Introduction to Calculus & Analysis (Vol 1 & Vol 2) By R. Courant & F. John. Springer Verlage. New York. Inc. 1989
6. Calculus By M.J. Strauss, G.L. Bradley & K.J. Smith, 3<sup>rd</sup> Ed Dorling Kindersley (India) Pvt. Ltd.
7. Basic Multivariate Calculus by E. Marsden, A.J. Tromba & A. Weinstein Springer (SIE), Indian reprint 2005
8. Multivariate calculus By S. Ghorpade, B.V. Limaye
9. Multivariate Calculus By James Stewart
10. Advanced Calculus By Santosh K. Sengar & S.P. Singh Sengage learning India
11. Analytical Solid Geometry By Shantinayakan, P.K..Mittal S.Chand & Co Pvt. Ltd.
12. Analytical Solid Geometry of Quadratic Surfaces By B.P. Acharya & D.C. Sahu Kalyani Publishers, New Delhi
13. Analysis I-Second Ed By Terence Tao Hindustan Book Agency
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