B.Sc. PHYSICS PRACTICAL SYLLABUS UNDER CBCS SCHEME OF INSTRUCTION

Semester	Paper	Instructions hours/week	Marks	credits
I	Mechanics & oscillations	3	25	1
II	Thermal physics	3	25	1
III	Electro magnetic theory	3	25	1
IV	Waves &optics	3	25	1
V	Modern Physics	3	25	1
VI	Electronics	3	25	1

Total credits = 6

Paper – I: Mechanics and Oscillations Practicals
(DSC-1: Compulsory)
1. Measurement of errors – Simple Pendulum.
2. Calculation of slope and intercept of Y= mX +C graph by theoretical method (simple pendulum experiment)
3. Study of a compound pendulum- determination of 'g' and 'k'.
4. Y' by uniform Bending
5. Y by Non-uniform Bending.
6. Moment of Inertia of a fly wheel.
7. Rigidity modulus by Torsion Pendulum.
8. Determination of surface tension of a liquid through capillary rise method.
9. Determination of Surface Tension of a liquid by any other method.
10. Determination of Viscosity of a fluid.
11. Observation of Lissajous figures from CRO- Frequency ratio. Amplitude and phase difference of two waves.
12. Study of oscillations of a mass under different combination of springs- Series and parallel
13. Study of Oscillations under Bifilar suspension- Verification of axis theorems

Paper – II: Thermal Physics Practicals
(DSC-2: Compulsory)
1. Co-efficient of thermal conductivity of a bad conductor by Lee's method.
2. Measurement of Stefan's constant.
3. Specific heat of a liquid by applying Newton's law of cooling correction.
4. Heating efficiency of electrical kettle with varying voltages.
5. Calibration of thermo couple
6. Cooling Curve of a metallic body
7. Resistance thermometer
8. Thermal expansion of solids
9. Study of conversion of mechanical energy to heat.
10. Determine the Specific of a solid (graphite rod)

Paper – III: Electromagnetic Theory Practicals
(DSC-3: Compulsory)
1. To verify the Thevenin Theorem
2. To verify Norton Theorem
3. To verify Superposition Theorem
4. To verify maximum power transfer theorem.
5. To determine a small resistance by Carey Foster's bridge.
6. To determine the (a) current sensitivity, (b) charge sensitivity, and (c) CDR of a B.G.
7. To determine high resistance by leakage method.
8. To determine the ratio of two capacitances by De Sauty's bridge.
9. To determine self-inductance of a coil by Anderson's bridge using AC.
10. To determine self-inductance of a coil by Rayleigh's method.
11. To determine coefficient of Mutual inductance by absolute method.
12. LR circuit
13. RC circuit
14. LCR series circuit
15. LCR parallel circuit

Paper – IV: Waves and Optics Practicals
(DSC-4: Compulsory)
1. Thickness of a wire using wedge method.
2. Determination of wavelength of light using Biprism.
3. Determination of Radius of curvature of a given convex lens by forming Newton's rings.
4. Resolving power of grating.
5. Study of optical rotation-polarimeter.
6. Dispersive power of a prism
7. Determination of wavelength of light using diffraction grating minimum deviation method.
8. Wavelength of light using diffraction grating – normal incidence method.
9. Resolving power of a telescope.
10. Refractive index of a liquid and glass (Boys Method).
11. Pulfrich refractometer – determination of refractive index of liquid.
12. Wavelength of Laser light using diffraction grating.

13. Verification of Laws of a stretched string (Three Laws).
14. Velocity of Transverse wave along a stretched string
15. Determination of frequency of a bar- Melde"s experiment

Paper- V(A) : Modern Physics Practicals
(DSE-1: Elective)
1. Measurement of Planck's constant using black body radiation and photo-detector
2. Photo-electric effect: photo current versus intensity and wavelength of light; maximum energy of photo-electrons versus frequency of light
3. To determine the Planck's constant using LEDs of at least 4 different colors.
4. To determine the ionization potential of mercury.
5. To determine the absorption lines in the rotational spectrum of Iodine vapour.
6. To determine the value of e/m by (a) Magnetic focusing or (b) Bar magnet.
7. To setup the Millikan oil drop apparatus and determine the charge of an electron.
8. To show the tunnelling effect in tunnel diode using I-V characteristics.
9. To determine the wavelength of laser source using diffraction of single slit.
10. To determine the wavelength of laser source using diffraction of double slits.
11. To determine (1) wavelength and (2) angular spread of He-Ne laser using plane diffraction grating
12. To determine the value of e/m for electron by long solenoid method.
13. Photo Cell – Determination of Planck's constant.
14. To verify the inverse square law of radiation using a photo-electric cell.
15. To find the value of photo electric work function of a material of the cathode using a photo-electric cell.
16. Measurement of magnetic field – Hall probe method.
17. To determine the dead time of a given G.M. tube using double source.
18. Hydrogen spectrum – Determination of Rydberg's constant
19. Energy gap of intrinsic semi-conductor
20. G. M. Counter – Absorption coefficients of a material.
21. To draw the plateau curve for a Geiger Muller counter.
22. To find the half-life period of a given radioactive substance using a G.M. Counter.

Paper-VI(A) : Electronics Practicals
(DSE-2: Elective)
1. Construction of logic gates (AND, OR, NOT, gates) with discrete components– Truth table Verification

2. AND, OR, NOT – gates constructions using universal gates – Verification of truth tables.

3. Construction of NAND and NOR gates with discrete components and truth table verification

4. Characteristics of a Transistor in CE configuration

5. R.C. coupled amplifier – frequency response.

6. Verification of De Morgan's Theorem.

7. Zener diode V-I characteristics.

8. P-n junction diode V- I characteristics.

9. Zener diode as a voltage regulator

10. Construction of a model D.C. power supply

11. R C phase shift Oscillator –determination of output frequency

Model question papers:

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5. Determine R.C. coupled amplifier – frequency response.

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7. construct and verify Zener diode V-I characteristics.

8. draw P-n junction diode V- I characteristics.

9. show that Zener diode as a voltage regulator

10. Construct a model D.C. power supply

11. Determine output frequency of R C phase shift Oscillator