PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2024
(Third Semester)

Common to Branches – **CHEMISTRY & BIOCHEMISTRY**

PHYSICS - I

Time: Three Hours   Maximum: 50 Marks

SECTION-A (5 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks   (5 x 1 = 5)

1   The maximum displacement of a vibrating particle is called as_____.
   (i)   Amplitude   (ii)   Wavelength
   (iii) Frequency   (iv)   Phase

2   Which is the correct expression of Hooke's law?
   (i)   Stress=E + Strain   (ii)   Stress=E x Strain
   (iii) Stress=E -Strain   (iv)   Stress=E / Strain

3   Identify the nature of Helium II.
   (i)   Super gas   (ii)   Normal fluid
   (iii) Super fluid   (iv)   Normal gas

4   What is the value of B =?
   (i) μ_0/H (ii) μ_0+H
   (iii) μ_0-H (iv) $\mu_0 H$

5   Find the expression of Snell's law of refraction.
   (i) $n_1 \sin \theta_1 = n_2 \sin \theta_2$ (ii) $n_1 \sin \theta_2 = n_2 \sin \theta_1$
   (iii) $n_2 \sin \theta_1 = n_1 \sin \theta_2$ (iv) $n_1 + n_2 = \sin \theta_1 +\sin \theta_2$

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks   (5 x 3 = 15)

6   a   Explain simple harmonic motion shortly.
                        OR
    b   Write a note on Lissajous figures.

7   a   Prepare a note on elastic constants.
                        OR
    b   Bring out the expression of Poiseuilles formula.

8   a   Describe Joule –Kelvin effect briefly.
                        OR
    b   Analyse the term "Entropy".

9   a   State and explain Biot-Savart's law.
                        OR
    b   Outline the circuit control and protective devices shortly.

10 a   Analyse the refractive index using air cell.
                        OR
    b   With neat sketch explain direct vision prism.

Cont...

SECTION -C (30 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** Marks   (5 x 6 = 30)

11 a Discover the composition of two simple harmonic motions at right angles.

OR

  b Summarize the production of ultrasonics with neat diagram.

12 a Enumerate the rigidity modulus by torsional pendulum.

OR

  b Outline the excess of pressure inside a drop and bubble.

13 a Discuss the Linde's process in detail.

OR

  b State the laws of thermodynamics and thermodynamic equilibrium.

14 a Derive an expression of magnetic field along the axis of the coil carrying current.

OR

  b Examine the power factor and current values in an ac circuit.

15 a Discover the combination of two small angles prisms to produce dispersion without deviation.

OR

  b Compare the direct vision prism with constant deviation prism in detail.

Z-Z-Z   END