

B.Sc. Semester - 2 (NEP-2020) Examination

MARCH/APRIL-2026

PHY: Mechanics and Optics (Major-4)

Time: 2:00 Hours

Marks: 50

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

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- Que. 1 Answer the following questions. (Any Two) (10)
- 1) Derive a general wave equation in differential form.
 - 2) State the Law of Transverse vibration of strings.
 - 3) Derive Newton's formula for velocity of sound in air and apply Laplace's correction to it.
- Que. 2 Answer the following questions. (Any Two) (10)
- 1) What is meant by Interference of light? Write conditions for Interference of light.
 - 2) Write a short note on Lloyd's single mirror.
 - 3) Explain wedge shaped thin film.
- Que. 3 Answer the following questions. (Any Two) (10)
- 1) What is X-ray? Discuss about production of X-ray.
 - 2) Explain Bragg's Law.
 - 3) Define radio activity. What kinds of rays are emitted? What are their properties?
- Que. 4 Answer the following questions. (Any Five) (10)
- 1) What are Particle velocity and wave velocity?
 - 2) Write about velocity of transverse waves.
 - 3) Explain in short acoustics of building.
 - 4) What is constructive and destructive interference?
 - 5) Define Principle of Superposition.
 - 6) Explain in short types of interference.
 - 7) List out the properties of X-rays.
 - 8) Discuss about intensity measurement of X-ray.
 - 9) Write about natural and artificial radioactivity.
- Que. 5 Answer the following questions. (Any Two) (10)
- 1) Discuss about speed of a sound wave in a material medium.
 - 2) Explain Young's double slit experiment.
 - 3) What are the important applications of X-ray? Explain it.
