



B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL



PT-2 EXAMINATION

PHYSICS (042)

Class: XI

Date: 08.11.25

Admission no:

Time: 1hr

Max Marks: 25

Roll no:

General Instructions:

- (i) There are three sections A, B, and C with 13 questions in total, Section A has 5 Multiple Choice Questions of one mark each, Section B has 4 questions of two marks each and Section C has 4 questions of three marks each.
- (ii) All questions are compulsory.
- (iii) Calculators are not allowed.

Section A

1. Hooke's law is valid up to: 1
(a) Yield point (b) Elastic limit (c) Breaking point (d) Proportional limit
2. A wire of length L and radius r is stretched by a force F . The extension is proportional to: 1
(a) L (b) $1/L$ (c) r^2 (d) F^2
3. Pressure at a depth h in a liquid of density ρ is given by: 1
(a) ρgh (b) $\rho g/h$ (c) gh/ρ (d) ρ/hg
4. The device that works on Pascal's law is: 1
(a) Venturimeter (b) Hydraulic lift (c) U-tube manometer (d) Barometer

Directions: Question 5 contain two statements, Assertion and Reason, has four alternative choices, only one of which is the correct answer. You have to select one of the codes (a), (b), (c) and (d) given below.

- (a) Assertion is correct, reason is correct; reason is a correct explanation for assertion.
- (b) Assertion is correct, reason is correct; reason is not a correct explanation for assertion
- (c) Assertion is correct, reason is incorrect.
- (d) Assertion is incorrect, reason is correct.

5. **A:** Larger drops of liquid are spherical while smaller drops are not. 1
R: Surface tension tries to minimise surface area, giving spherical shape.

Section-B

6. What is Poisson's ratio? Write its formula and dimensions. 2
7. A steel wire of length 2 m and radius 1 mm is stretched by 2 mm. Calculate stress and strain. ($Y = 2 \times 10^{11} \text{ N/m}^2$). 2
8. State the factors affecting the viscosity of a fluid. 2
9. Explain why drops of liquid are spherical in shape. 2

Section-C

- 10 Derive an expression for the work done in stretching a wire under load. 3
- 11 Explain the terms: (i) yield point (ii) ultimate stress (iii) breaking stress. 3
- 12 Viscosity of a liquid = $0.1 \text{ N}\cdot\text{s/m}^2$. A layer 0.5 mm thick is between two plates. If force of 2 N moves one plate at speed 1 m/s, find area of the plate. 3
- 13 State and prove Bernoulli's law for streamline and non-viscous fluid. 3

---ALL THE BEST---