



B.K. BIRLA CENTRE FOR EDUCATION

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



PRE MID-TERM EXAMINATION

PHYSICS (042)

Class: XI

SET-1

Time: 1hr

Date: 24.07.26

Max Marks: 25

Admission no:

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 Mark Each)

1. The dimension of the physical quantity β in the equation $E = \text{Force} / \beta$, where E is energy, is:
(a) L^{-1} (b) L^{-2} (c) L (d) MLT^{-2}
2. How many significant figures are there in 0.005060?
(a) 3 (b) 4 (c) 5 (d) 6
3. The displacement of a particle is given by: $x = t^2 - 4t + 3$, where x is in metres and t in seconds. The distance covered in the first 4 seconds is:
(a) 4 m (b) 6 m (c) 8 m (d) 10 m
4. A ball is thrown vertically upward. Taking upward as positive, while the ball is moving upward:
(a) $x > 0, v > 0, a > 0$ (b) $x > 0, v > 0, a < 0$ (c) $x > 0, v < 0, a < 0$ (d) $x < 0, v > 0, a < 0$
5. Assertion: A body moving with constant speed may have acceleration.
Reason: Acceleration can arise due to a change in the direction of velocity.
(a) Both Assertion and Reason are correct and Reason is the correct explanation.
(b) Both are correct but Reason is not the correct explanation.
(c) Assertion is correct but Reason is incorrect.
(d) Assertion is incorrect but Reason is correct.

Section B (2 Marks Each)

6. A photograph occupies an area of 2 cm^2 on a slide. When projected on a screen, the area becomes 2 m^2 . Find the linear magnification.
7. A new unit of time is chosen such that the speed of light becomes unity. Find the distance travelled by light in 10 minutes in the new unit.
8. A car moving with speed 72 km h^{-1} is brought to rest in 100 m. Find:
 - (i) Retardation
 - (ii) Time taken to stop
9. Show that the slope of a displacement–time graph gives velocity.

Section C (3 Marks Each)

10. Write dimensional formulae of:
 - (i) Momentum
 - (ii) Force
 - (iii) Work
 - (iv) Power
 - (v) Density
 - (vi) Acceleration
11. The time period T of a simple pendulum depends on its length l and acceleration due to gravity g . Obtain the relation dimensionally.
12. (i) Two cars A and B are moving in the same direction with speeds 10 m/s and 20 m/s respectively. B is 50 m behind A. Find the time required for B to catch A.
 - (ii) Write two differences between distance and displacement.
13. A stone is thrown vertically upward with speed 20 m/s . Draw the velocity–time graph till it returns to the ground.

---ALL THE BEST---