

BOARD OF INTERMEDIATE EDUCATION

JUNIOR INTER PHYSICS

MODEL PAPER (English Version)

Time: 3 Hours

Max. Marks: 60

SECTION – A

I. (i) Very Short Answer Type questions.

(ii) Answer ALL questions.

(iii) Each question carries TWO Marks.

10 × 2 = 20

1. What is the discovery of C.V. Raman?
2. Express unified atomic mass unit in kg.
3. How is average velocity different from instantaneous velocity?
4. What is the acceleration of projectile at the top of its trajectory?
5. A horse has to pull harder during the start of the motion than later. Explain.
6. If the polar ice caps of the earth were to melt, what would be the effect of length of the day be?
7. Give two examples of periodic motion which are not oscillatory?
8. If an iron wire is stretched by 1%, what is the strain on the wire?
9. What is green house effect? Explain global warming?
10. Explain the concept of degrees of freedom for molecules of a gas.

SECTION – B

II. (i) Short Answer Type questions.

(ii) Answer any SIX questions.

(iii) Each question carries FOUR Marks.

6 × 4 = 24

11. A car travels first one third of a distance with a speed of 10 kmph, the second third at 20 kmph and the last third at 60 kmph. What is its mean speed over the entire distance?

12. Show that maximum height and range of projectile are $\frac{u^2 \sin^2 \theta}{2g}$, $\frac{u^2 \sin 2\theta}{g}$ respectively where the terms have their regular meaning.
13. Mention the methods used to decrease the friction.
14. Define vector product. Explain properties of vector product with two examples.
15. Obtain an equation for the frequency of oscillation of force constant 'k' to which a mass 'm' is attached.
16. Explain the concept of Elastic Potential energy in a stretched wire and hence obtain the expression for it.
17. Explain Surface tension and Surface energy.
18. In what way anomalous behaviour of water advantageous to aquatic animals?

SECTION – C

III. (i) Long Answer Type questions.

(ii) Answer any TWO questions.

(iii) Each question carries EIGHT Marks.

$2 \times 8 = 16$

19. (a) State and prove law of conservation of energy in case of a freely falling body.
(b) A machine gun fires 360 bullets per minute. Each bullet travels with a velocity of 600 m/s. If the mass of each bullet is 5 gm. Find the power of machine gun.
20. (a) State and prove parallel axes theorem.
(b) Find the vector product of two vectors
 $\vec{A} = 3\hat{i} - 4\hat{j} + 5\hat{k}$, $\vec{B} = -2\hat{i} + \hat{j} - 3\hat{k}$
21. Explain reversible and irreversible processes. Describe the working of Carnot engine. Obtain an expression for the efficiency.

Writer: R. Sudharani