

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.

ii) Each question carries TWO marks.

10 × 2 = 20

1. What is the contribution of S.Chandra Shekar to Physics?
2. The error in the measurement of radius of a sphere is 1%. What is the error percentage in the measurement of its volume?
3. Can a vector of magnitude zero have non-zero components?
4. Why does a heavy rifle not recoil as strongly as a light rifle using the same cartridges?
5. What is Dynamic lift?
6. Define Pascal's law.
7. What is 'greenhouse effect'?
8. How skating is possible on ice?
9. When does a real gas behave like an ideal gas?
10. Four molecules of a gas have speeds 1, 2, 3 and 4 m/s respectively. Find the rms speed of the gas molecules.

SECTION – B

II. i) Short Answer Type questions.

ii) Answer any SIX questions.

ii) Each question carries FOUR marks.

6 × 4 = 24

11. State parallelogram law of vectors. Derive an expression for the magnitude of the resultant vector.
12. A car travels the first third of 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?
13. Explain advantages and disadvantages of friction.
14. Find the vector product of two vectors.
 $\vec{A} = (3\vec{i} - 4\vec{j} + 5\vec{k})$, $\vec{B} = (-2\vec{i} + \vec{j} - 3\vec{k})$
15. What are geostationary and polar satellites?
16. Describe the behaviour of a wire under gradually increasing load.
17. Distinguish between centre of mass and centre of gravity.
18. Explain conduction and convection with examples.

SECTION – C

III. i) Long Answer Type questions.

ii) Answer any TWO questions.

ii) Each question carries EIGHT marks.

$2 \times 8 = 16$

19. State and prove law of conservation of energy in the case of a freely falling body.

A machine gun fires 360 bullets per minute and each bullet travels with a velocity of 600 m/s. If the mass of each bullet is 5g, find the power of the machine gun.

20. Define simple harmonic motion. Show that the motion of projection of a particle performing uniform circular motion, on any diameter, is simple harmonic.

21. Explain reversible and irreversible processes. Describe the working of Carnot engine. Obtain an expression for the efficiency.