PHYSICS
Paper – I

Total no of questions-21   **(English Version)**

Time : 3 Hours   **Max. Marks : 60**

SECTION – A   (10x2=20)

Note : (i) Answer ALL questions.
(ii) Each question carries TWO marks.
(iii) ALL are very short answer type questions.

1. What is the discovery of C.V.Raman?

2. Distinguish between accuracy and precision ?

3. $\bar{A} = \bar{\imath} + \bar{\jmath}$. what is the angle between the vector and x-axis ?

4. Can the coefficient of friction be greaterthan one?

5. Define viscosity. What are its units and dimensions ?

6 What is angle of contact ?

7. What are lower and upper fixing points in Celsius and Fahrenheit scales ?

8. State Weins displacement law ?

9. State Boyle's law and Charle's law ?

10. State Dalton's law of partial pressures ?

SECTION –B   (6x4=24)

Note : (i) Answer ANY SIX questions.
(ii) Each question carries FOUR marks.
(iii) ALL are short answer type questions.

11. 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?

12. Show that the trajectory of an object thrown at a certain angle with the horizontal is a parabola.

13 Mention the methods used to decrease friction

14. Distinguish between centre of mass and centre of gravity

15. Find the centre of mass of three particles at the vertices of an equilateral triangle. The masses of the particles are 100 gm, 150gm and 200 gm respectively. Each side of the equilateral angle is 0.5 m long

16. What is orbital velocity ? obtain expression for it

17. Describe the behaviour of a wire under gradually increasing load

18. In what way anomalous behaviour of water advantageous to acquatic animals ?

<p align="center">**SECTION –C**   **(2x8=16)**</p>

Note : (i) Answer ANY TWO questions.
       (ii) Each question carries EIGHT marks.
       (iii) ALL are long answer type questions.

19. Define simple harmonic motion. Show that the motion of (point) projection of a particle performing uniform circular motion, on any diameter is simple harmonic. A bob of a pendulum is made of a hollow brass sphere. What happens to the time period of the pendulum, if the bob is filled with water completely? Why?

20. Define two principal specific heats of a gas. Which is greater and why ? Derive a relation between the two specific heat capacities of a gas on the basis of first law of thermodynamics.

21. What are Collisions? Explain the possible types of Collisions ? Develop the theory of one dimensional elastic collision.