

7. What is isothermal process?
8. What is periodic motion?
9. On turning a corner a car driver driving at 36 km/h finds a child on the road 55 m ahead. He immediately applies break. So as to stop within 5 m of the child calculate the retardation produced and the time taken by the car to stop.
10. Write the difference between speed and velocity.
11. State and prove parallel axis theorem.

OR

State and prove perpendicular axis theorem.

12. Water wets glass wall but mercury does not wet. Explain.
13. Explain the term triple point.
14. State zeroth and first law of thermodynamics.

OR

Derive the expression for work done in an isothermal process.

- 15.** Write the difference between longitudinal and transversal waves.
16. check the correctness of following equation by using dimensional analysis
a) $E = mc^2$ b) $v^2 = u^2 + 2as$

- 17.State and prove law of conservation of mechanical energy.**

OR

State and derive second law of motion.

- 18.** Explain how does a body attain a terminal velocity when it is dropped from rest in a viscous medium. Derive an expression for the terminal velocity of a small spherical body falling through a viscous medium.

19. Calculate the heat required to change the 10 g ice of 0°C to vapour of 100°C . Latent heat of ice is 80 cal/g , latent heat of vaporization is 540 cal/g and specific heat of water is 1°C/g .
20. How far does the sound travel in air when a tuning fork of frequency 256 Hz makes 64 vibrations? Velocity of sound in air 320 m/s .

OR

Write the difference between progressive and Stationary waves.

21. The length of a road as measured in an experiment was found to be 2.48m, 2.46m, 2.49m, 2.50m, and 2.48m. Find the average length and absolute error in each observation and percentage error.

OR

In an experiment refractive index of Glass was observed to be 1.45, 1.56, 1.54, 1.44, 1.54 and 1.53 calculate mean absolute error and percentage error.

22. What is gravitational potential energy? Derive the expression for it.

OR

What is acceleration due to gravity? How it changes with altitude of earth?

- 23.State and prove Pascal's law.

OR

State and prove Bernoulli's theorem.

24. State second law of thermodynamics? Explain the mechanics of heat engine. Define the efficiency of heat engine and give the expression for it.

OR

What is Carnot theorem? Explain the Carnot cycle.