

**CBSE TEST – 2****SECTION – A : (1 × 8 = 8) [Attempt any 6]****Time: 1:30 hr****M.M. 35**

1. State law of equipartition of energy.
2. Why efficiency of ideal heat engine cannot be 100 %?
3. What is value of work done in a cyclic process?
4. What is value of G on the surface of mars?
5. How many times in one oscillation, the kinetic energy and potential energy becomes maximum?
6. Why does the time period of a pendulum change when taken to the top of a mountain or deep in a mine?
7. Can we boil water inside an artificial satellite by convection?
8. What is elastic hysteresis?

**SECTION – B : (2 × 5 = 10) [Attempt any 5]**

9. 10 g of ice at 0°C is converted to steam at 100°C. Find the heat required. Given that latent heat of ice = 80 cal g<sup>-1</sup>, latent heat of water = 540 cal g<sup>-1</sup> and specific heat of water = 1 cal g<sup>-1</sup> C<sup>-1</sup>.
10. Draw P-V indicator diagrams for (a) Isothermal (b) adiabatic processes.
11. Draw the wave pattern for first and second harmonic for both end fixed string.
12. What is the value of phase difference between displacement and velocity and between displacement and acceleration of a body executing S.H.M.?
13. Show that C<sub>p</sub> equals to C<sub>v</sub> + R.
14. What is a geostationary satellite? What is the height of a geostationary satellite?
15. Distinguish between streamlined and turbulent flow.
16. Derive the expression of escape velocity of satellite.

**SECTION – C : (3 × 3 = 9) [Attempt any 3]**

17. Explain the variation of g with height.
18. Find the expression of work done in isothermal process.
19. Define the Doppler Effect. Find the formula for frequency change due to motion of listener approaching a stationary source.
20. Distinguish between transverse waves and longitudinal waves. Give example.
21. State the various assumptions of the kinetic theory of gas. Derive an expression for the pressure exerted by a gas on the basis of this theory.

**SECTION – D : (5 × 2 = 10)**

22. State and prove Carnot theorem.
23. State and prove Bernoulli's theorem and give its two applications.