

2MS

SECOND MID TERM TEST - 2023

CLASS :11

PHYSICS

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TIME : 1.30 Min

MARKS :40

- I Answer all the questions.** 1 X 10 = 10
- A small sphere of radius 2cm falls from rest in a viscous liquid. Heat is produced due to viscous force. The rate of production of heat when the sphere attains its terminal velocity is proportional to a) 2^2 b) 2^3 c) 2^4 d) 2^5
 - The Young's modulus for a perfect rigid body is
a) 0 b) 1 c) 0.5 d) Infinity
 - If the radius of the capillary tube decreases, the capillarity
a) greater b) lower c) over flow d) same
 - The SI unit for specific heat capacity is
a) $J^{-1} Kg^{-1} K^{-1}$ b) $JKg^{-1}K$ c) $JKg^{-1} K^{-1}$ d) $J^{-1} KgK^{-1}$
 - Change of state from gas to liquid is known as
a) Melting b) Evaporation c) Condensation d) Freezing
 - When a cycle tyre suddenly bursts, the air inside the tyre expands. This process is
a) isothermal b) adiabatic c) isobaric d) isochoric
 - In an isochoric process, we have
a) $w = 0$ b) $Q = 0$ c) $\Delta u = 0$ d) $\Delta T = 0$
 - Two identical sized rooms A and B are connected by an open door. If the room A is air conditioned such that its temperature is $4^\circ C$ lesser than room B, Which room has more air in it? a) Room A b) Room B
c) Both Room has same air d) Cannot be determined
 - Which of the following gases will have least rms speed at a given temperature?
a) Hydrogen b) Nitrogen c) Oxygen d) Carbondioxide
 - The example for diatomic molecule is
a) Helium b) Hydrogen c) Neon d) Argon
- II Answer any three question. Q.No.15 is compulsory.** 3 X 2 = 6
- State Hooke's law of elasticity.
 - Define the co-efficient of performance.
 - What are the conditions for reversible process?
 - Define the term degrees of freedom.
 - During a cyclic process, a heat engine absorbs 500J of heat from a hot reservoir, does work and ejects an amount of heat 300J into the surroundings (cold reservoir). Calculate the efficiency of the heat engine?
- III Answer any three questions. Q.No.20 is compulsory.** 3 X 3 = 9
- What are the factors affecting the surface tension of a liquid?
 - State and prove Pascal's law in fluid.
 - Distinguish between Isothermal and adiabatic process.
 - Why moon has no atmosphere?
 - Estimate the total number of air molecules in a room of capacity $25m^3$ at a temperature of $27^\circ C$
- IV Answer all.** 1 X 5 = 5
- Derive Poiseuille's formula for the volume of a liquid flowing per second through a pipe under streamlined flow (OR)
State and prove Bernoulli's theorem for a flow of incompressible, non viscous and streamline flow of liquid.
 - Explain in detail Newton's law of cooling. (OR)
Discuss three modes of heat transfer.
 - Write down the postulates of kinetic theory of gases. (OR)
Describe the total degrees of freedom for mono atomic molecule, diatomic molecule and triatomic molecule.