

## Question Bank (G scheme)

Name of subject:PHYSICS

Unit Test :II

Subject code: 17102

Course : ALL

Semester: I

### CHAPTER 3:THERMAL PROPERTIES OF MATTER[12 marks]

Questions for 2 Marks.

1. Distinguish between Heat and Temperature.
2. “We do not receive heat from the sun by conduction”, give reason
3. Define coefficient of thermal conductivity.State its unit.
4. Convert  $300^{\circ}\text{K}$  into  $^{\circ}\text{C}$ .
5. A gas at  $130^{\circ}\text{C}$  is heated at constant pressure till its volume is doubled.What is its final temperature.

Questions for 3 Marks.

1. Explain Law of Thermal conductivity
2. Explain Conduction, Convection and Radiation
3. State Boyle’s law, Charle’s law and Gay Lussac’s law
4. A window pane with glass material has a dimension  $100\text{cm} \times 50\text{cm} \times 5\text{mm}$ .Amount of heat conducted in 1 hour is Q. Calculate Q if the temperature difference is  $50^{\circ}\text{C}$  between outside and inside( $K=1\text{W/m/oK}$ )
5. A gas has a volume of  $0.6\text{m}^3$  at  $27^{\circ}\text{C}$ .and pressure of  $78\text{cm}$  of Hg.Find its volume at N.T.P

Questions for 4 Marks.

1. Define Specific heat at constant pressure and specific heat at constant volume and derive relation between them.
2. Distinguish between Isothermal process and Adiabatic process
3. The ratio of  $C_p$  to  $C_v$  for a gas is 1.4 and  $R/M=0.0124$ . Find the values of  $C_p$  and  $C_v$ .

### CHAPTER 4:OPTICS[6 marks]

Questions for 2 Marks.

1. Define Refraction of light .State Snell’s law of refraction.
2. Define Critical angle and Numerical Aperture.
3. Find the velocity of light in glass whose Refractive index is 1.5
4. State two conditions for Total Internal Reflection(T.I.R)

Questions for 3 Marks.

1. Explain structure of optical fiber.

Questions for 4 Marks.

- 1.Derive Prism formula.
2. Calculate numerical aperture and acceptance angle for an optical fiber. Given R.I of core= $1.40$ ,R.I of cladding= $1.35$ .

## **CHAPTER 5: WAVE MOTION[12marks]**

Questions for 2marks

1. State the relation between velocity, frequency and wavelength.
2. Define Amplitude and wavelength.
3. State example of Free and Forced vibration each.
4. Define Stationary wave, node and Antinode.

Questions for 3 Marks.

1. In a resonance Experiment the resonance occurs for fundamental mode with frequency of tuning fork 512Hz.If length of air column is 16cm.Calculate velocity of sound neglecting end correction.
2. Define Resonance. State any four example of it.
3. State Characteristics of Linear SHM.

Questions for 4 Marks.

1. Derive an equation for displacement in S.H.M.
2. Distinguish between Transverse wave and longitudinal wave.
3. Explain the formula for velocity of sound by resonance tube method.