

CLASS XI GUESS PAPER PHYSICS

THERMAL PROPERTIES OF MATTER

M.M: 35

Time 1:30 Hrs

General instructions: Attempt all questions. If you are not able to answer kindly go through the text book. You can find the answer.

SECTION-A (1-5, Carry 1 Mark)

1. Write definitions of temperature and heat.
2. What is SI unit of Temperature and heat?
3. Name the liquid which are used in commonly used the liquid-in-glass type thermometer.
4. The size of the unit..... temperature on these scales are related by.....
5. Why the water warms up much more slowly than the land during summer?

SECTION-B (6-10, Carries 2 marks)

6. When 0.15 kg of ice of 0 °C mixed with 0.30 kg of water at 50 °C in a container, the resulting temperature is 6.7 °C. Calculate the heat of fusion of ice. (swater = 4186 J kg⁻¹ K⁻¹)
7. Match the following;

A	B
(i) Conduction and convection require	(a) is a mode of heat transfer by actual motion of matter.
(ii) Convection	(b) some material as a transport medium.
(iii) The air in contact with the warm ground is heated by	(c) the steady surface wind on the earth blowing in from north-east towards the equator, the so called trade wind.
(iv) natural convection is	(d) convection

8. State and explain Boyle's law.
9. State and explain ideal gas law.
10. The pressure of the gas in constant volume gas thermometer are 80 cm, 90 cm and 100 cm of mercury at the ice point, the steam point and in a heated wax bath resp. Find the temperature of the wax bath.

SECTION-C (11-15, Carries 3 marks)

11. Define thermal expansion. Find the expression for linear, Area and Volume expansion.
12. Derive the relationship between (i) β and α (ii) α and γ .
13. Explain molar specific heat capacity and its types
14. A sphere of aluminium of 0.047 kg placed for sufficient time in a vessel containing boiling water, so that the sphere is at 100°C . It is then immediately transferred to 0.14 kg copper calorimeter containing 0.25 kg of water at 20°C . The temperature of water rises and attains a steady state at 23°C . Calculate the specific heat capacity of aluminium.
15. Explain (i) melting, melting point and normal melting point (ii) Regelation (iii) vaporisation, boiling point and normal BP.

SECTION-D (16, carry 5 marks)

16. What are the different ways by which this energy transfer takes place? Explain with suitable examples.

.....