

Physics - FSC Part 1 Physics Chapter 11 Short Questions Preparation

Q1. Define pressure of a gas.

Ans 1: The pressure exerted by a gas is the momentum transferred to the walls of the container per sec unit area due to continuous collision of molecules of gas.

Q2. What is thermodynamic scale of temperature? Give its unit.

Ans 1: The thermodynamic scale of temperature is defined by choosing 273.16K as the absolute temperature of the triple point of water as one fixed point and absolute zero as the other.
The unit of thermodynamic scale is kelvin.

Q3. Define the term internal energy . Discuss in what form it is in an ideal gas.

Ans 1: The sum of all forms of molecular energies such as kinetic and potential energy of a substance is called its internal energy. Internal energy of an ideal gas system is generally the translational kinetic energy of gas molecules.

Q4. Define entropy, how it changes with temperature.

Ans 1:

Q5. What is the similarity and difference between internal energy and gravitational P.E?

Ans 1: Internal energy is similar to the gravitational P.E. So like the potential energy, it is the change in internal energy and not its absolute value, which is important.
Internal energy depends upon temperature of the system while gravitational P.E depends on position of the particle.

Q6. What is difference between isothermal and adiabatic process?

Ans 1: Isothermal process: The process in which temperature of the system remains constant is called isothermal process.
 $T = \text{constant}$
Adiabatic System: The process in which no heat enters or leaves the system is called adiabatic system.

Q7. Specific heat of a gas at constant pressure is greater than specific heat at constant volume why?

Ans 1: At constant volume, no work is done and the entire heat is utilized in raising the internal energy of the system. But under constant pressure, heat is not only required to raise the internal energy but also to do work against constant pressure. Hence specific heat of a gas at constant pressure is greater than specific heat at constant volume.

Q8. We talk about molar specific heat of gases but not talk about molar specific heat of solids and liquids. Why?

Ans 1: In case of solids and liquids the change in volume and hence work done against external pressure during a change of temperature is negligibly small. But same can not be said about gases which suffer variation in pressure as well as in volume with the rise in temperature.

Q9. Why we reduce pressure in the tyre while moving on motorway?

Ans 1: We reduce the pressure in the tyre while moving on motorway because when a car is driven through some distance, its tyres become hot due to work done against friction between the tyres and the road which appears as heat. This heat is absorbed by the gas molecules contained in the tyre which results in an increase in pressure of the gas. If the pressure in the tyre is not reduced then the tyre may burst.

Q10. State Carnot's theorem.

Ans 1: It states that no heat engine can be more efficient than a Carnot engine operating between the same two temperatures.
