CBSE TEST PAPER 01

CLASS XI CHEMISTRY (Thermodynamics)

General Instructions:

- All questions are compulsory.
- Marks are given alongwith the questions.

1. Define a system. [1]

2. Define surroundings. [1]

3. State the first law of thermodynamics. [1]

4. What kind of system is the coffee held in a cup? [1]

5. Give an example of an isolated system. [1]

6. Name the different types of the system. [1]

7. What will happen to internal energy if work is done by the system? [1]

8. From thermodynamic point of view, to which system the animals and plants belong? [1]

9. How may the state of thermodynamic system be defined? [1]

10. Change in internal energy is a state function while work is not, why? [2]

Ans 1. A system in thermodynamics refers to that part of the universe in which observations like temperature , pressure, volume ,etc. are made.

Ans 2. The rest of the universe excluding system which might be in a position to exchange energy and matter with the system is called its surroundings.

Ans 3. The first law of thermodynamics states that 'the energy of an isolated system is constant'. *or*

Energy can neither be created nor be destroyed although it may be converted from one form to another.

Ans 4. Coffee held in a cup is an open system because it can exchange matter (water vapors) and energy (heat) with the surroundings.

Ans 5. Coffee held in a thermos flask is an example of an isolated system because it can neither exchange energy nor matter with the surroundings.

Ans 6. There are three types of system –

(i) Open system (ii) Closed system (iii) Isolated system

Ans 7. The internal energy of the system will decrease if work is done by the system.

Ans 8. Open system.

Ans 9. The state of thermodynamic system may be defined by specifying conditions of the system in terms of certain observable properties i.e.state variables like temperature, pressure, volume etc.

Ans 10. The change in internal energy during a process depends only upon the initial and final state of the system. Therefore it is a state function. But the work is related to the path followed. Therefore, it is not a state function rather it is a path function.