

J.E.E./A.I.P.M.T.Foundation - XI Chemistry Worksheet

Time: 30 min

Ch#6 : Thermodynamics -01

Full Marks: 20

Instructions:

1. All questions are compulsory.
2. Please give the explanation for the answer where applicable.

Q1 - Explain Open, Closed and Isolated system with examples.

(3 Marks)

Q2 - Explain macroscopic system and properties.

(3 Marks)

Q3 - Define Isochoric process.

(1 Mark)

Q4 - Derive an expression for the work done in an isothermal, reversible process.

(5 Marks)

Q5 - Express the change in internal energy of a system when

(i) No heat is absorbed by the system from the surroundings, but work ( $w$ ) is done on the system. What type of wall does the system have?

(ii) No work is done on the system, but  $q$  amount of heat is taken out from the system and given to the surroundings. What type of wall does the system have?

(iii)  $w$  amount of work is done by the system and  $q$  amount of heat is supplied to the system. What type of system would it be?

(3 Marks)

Q6 - Two moles of an ideal gas initially at  $27^{\circ}\text{C}$  and one atmospheric pressure are compressed isothermally and reversibly till the final pressure of the gas is 10 atm. Calculate  $q$ ,  $w$  and  $\Delta U$  for the process.

(3 Marks)

Q7 - Explain the enthalpy of formation of a substance.

(1 Mark)

Q8 - Give the second law of thermodynamics.

(1 Mark)