

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

Time: 30 min

Chapter#12: Thermodynamics-01

Full Marks: 20

Instructions:

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

Q1 - What is an adiabatic process?

(1 Mark)

Q2 - What is an isothermal process?

(1 Mark)

Q3 - Can the Carnot engine be realized in practice?

(1 Mark)

Q4 - What is critical temperature?

(2 Marks)

Q5 - What happens to the rate of loss of heat when small temperature difference between a liquid and its surroundings is doubled?

(2 Marks)

Q6 - A refrigerator is to maintain eatables kept at 9°C . If room temperature is 36°C , calculate the coefficient of performance.

(2 Marks)

Q7 - State Kelvin-Planck statement of second law of thermodynamics.

(3 Marks)

Q8 - Calculate the efficiency of a Carnot's engine working between steam point and ice point.

(3 Marks)

Q9 - What amount of heat must be supplied to $2 \times 10^{-2}\text{kg}$ of nitrogen at room temperature to raise its temperature by 45°C at constant pressure?

Given molecular mass of nitrogen is 28 and $R = 8.3 \text{ Jmole}^{-1}\text{K}^{-1}$

(5 Marks)