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 9^0C. If room temperature is 36^0C, 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 2×10^{-2}kg of nitrogen at room temperature to raise its temperature by 45^0C at constant pressure?
Given molecular mass of nitrogen is 28 and R = 8.3 Jmole^{-1}K^{-1}

(5 Marks)