ABES ENGINEERING COLLEGE, GHAZIABAD

Department of Applied Sciences and Humanities

Basics of Mechanical and Automation Engineering (25ME101)

Assignment - 3 (Unit - 2: TRAC)

Thermodynamics, Refrigeration and Air Conditioning

Date of sharing: 04/11/2025 **Last Date of Submission: 14/11/2025**

Section: CSE-22 & AIML-3

S. No.	CO	Questions	K Level
1	CO2	Explain the following terms: (*i*) Intensive and Extensive Properties, (*ii*) Quasi Static Process, (*iii*) Thermodynamic Cycle, (iv) Kalvin-Plank Statement - 2nd law of Thermodynamics, (v) WBT, (vi) DPT, (vii) RH and (viii) 1 Tonne of refrigeration	K2
2	CO2	In an internal combustion engine, during the compression stroke the heat rejected to the cooling water is 50 kJ/kg and the work input is 100 kJ/kg. Calculate the change in internal energy of the working fluid stating whether it is a gain or loss.	K3
3	CO2	A cylinder containing the air comprises the system. Cycle is completed as follows : (i) 92000 N-m of work is done by the piston on the air during compression stroke and 51 kJ of heat are rejected to the surroundings. (ii) During expansion stroke 101010 N-m of work is done by the air on the piston. Calculate the quantity of heat added to the system.	K3
4	CO2	The capacity of a refrigerator is 200 TR when working between – 6°C and 25°C. Determine the mass of ice produced per day from water at 25°C. Also find the power required to drive the unit. Assume that the cycle operates on reversed Carnot cycle and latent heat of ice is 335 kJ/kg and specific heat of water as 4.18 kJ/kg K.	K3
5	CO2	Explain the construction and working of VCRS (vapour compression refrigeration system) with neat and clean diagram. Also draw p-h and T-s diagram.	K2

- Submission on any notebook/register will not be accepted. Only plain A4 sheets will be accepted (stapled). You can write on both sides of the paper.
- *No submissions after the above-mentioned last date* in any case. Follow the deadline. Earlier submissions may be done.
- Answers must be having proper details and neat and clean diagrams, wherever applicable.