Roll No.....

B.Tech
2024
3rd Sem.

Department of Food Technology
School of Interdisciplinary Sciences and Technology
Jamia Hamdard, New Delhi-110062
End Semester Examination.
December,2024.B.TechIII[rd]SEM)
Paper Title: Thermodynamics (Backlog); Paper Code: BFTC-303

Time Allotted: 3Hrs. **MaxMarks:60**

***Note*: Write to the point. Before answering make sure you have mentioned the Question No.**

Section-A (2 Marks each, Attempt All)

Q1	Write down the expression for efficiency of Carnot Cycle?	Co1Po3
Q2	What is internal energy?	Co1Po2
Q3	What is PMMII?	Co1Po3
Q4	What is the unit of enthalpy?	Co2Po2
Q5	Write down the full name of SFEE?	Co1Po3

Section-B(5 Marks Each, Attempt any 5)

Q6	What do you understand by heat engine? Explain with neat diagram.	Co1Po3
Q7	What is first law of thermodynamics? Explain the statements for the same.	Co2Po2
Q8	Determine the dryness fraction of steam if 3 kg of water is in suspension with 42 kg of dry steam	Co2Po3
Q9	What do you understand by thermodynamic work transfer. Derive the expression for non-flow work during adiabatic process?	Co2Po2
Q10	What do you understand by Carnot cycle? Explain each and every process with p-v and T-s diagram .	Co2Po3
Q11	What do you understand by enthalpy ? Prove that the heat transferred at constant pressure increases the enthalpy of the system.	Co2Po2
Q12	What do you understand by thermodynamic properties.Write down the classification.	Co2Po2

Section C (Attempt any 2) (12.5 Marks Each)

Q13	What do you understand by Otto cycle.Derive the expression for the efficiency of Otto cycle	Co3Po4
Q14	Write short notes on a. Kelvin Planck statement. b. Clausius inequality	Co4Po4
Q15	A stationary mass of gas is compressed without friction from an initial state of 0.30m^3 and 0.105 M Pa to a final state of 0.15 m^3 and 0.105 M Pa ,the pressure remaining constant during the process. There is transfer of 37.6 KJ of heat from the gas during the process. How much does the internal energy of the gas change?	Co3Po4
Q16	What do you understand by Clausius inequality? Write down the proof of Clausius inequality.	Co4Po4