



B.Tech III Semester Supplementary Examinations, December 2024

THERMODYNAMICS
(Mechanical Engineering)

Maximum Marks: 70

Date: 04.12.2024

Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X2M=20) Marks		CO	Bloom Tx
1	Define Zeroth law of Thermodynamics.	1	L1
2	Distinguish between different types of systems with examples	1	L1
3	Write the available energy in a system?	2	L1
4	Distinguish between availability and irreversibility.	2	L1
5	What are the triple point?	3	L1
6	Classify various non flow process.	3	L1
7	Define Vander Waals equation.	4	L1
8	Define Mole fraction in perfect gas.	4	L1
9	Define T-V diagram.	5	L1
10	Write the means effective pressure?	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		CO	Bloom Tx
11	Sketch and explain the Zeroth law of thermodynamics. [10M]	1	L2
OR			
12	State constant volume gas thermometer with ideal gas. [10M]	1	L2
13	Explain first law of thermodynamics with steady flow energy equation. [10M]	2	L2
OR			
14	Explain about Maxwells relation for internal energy and entropy for third law of thermodynamics. [10M]	2	L2
15	Explain with neat sketch P-V-T surface. [10M]	3	L2
OR			
16	Explain the T-S and H-S diagram with Mollier chart. [10M]	3	L2
17	Derive perfect gas model with neat sketch. [10M]	4	L2

	OR		
18	Explain Mole fraction, volume fraction and partial pressure. [10M]	4	L2
19	Explain Diesel dual combustion cycle . [10M]	5	L2
	OR		
20	Explain Sterling cycle and Atkinson cycle with neat sketch. [10M]	5	L2

18-3330-SEM-500000-DEC-2024