R20 Regulation *Subject code: 3P3CD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech III Semester Supplementary Examinations, December 2024

THERMODYNAMICS

(Mechanical Engineering)

Maximum Marks: 70 Date:09.12.2024 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 extensive property.	1	L1
2	Distinguish between different types of systems with examples?	1	L1
3	State Clausius Statement of Second law of thermodynamics.	2	L1
4	Mention the various process of Lenoir cycle.	2	L1
5	What is meant by saturated steam?	3	L1
6	What is meant by Mass fraction?	3	L1
7	Define an ideal gas.	4	L1
8	Define Partial pressure.	4	L1
9	Write the relation between specific heats and adiabatic index?	5	L1
10	What is mean by mean effective pressure?	5	L1
	Part-B		
Answer All the following questions. (5X10M=50Marks)		CO	Bloom Tx
11	Sketch the constant volume gas thermometer and explain. [10M]	1	L2
	OR		
12	Explain Zeroth law of thermodynamic systems and first law of thermodynamics [10M]	1	L2
13	Derive the expression for steady flow and steady state energy equation. [10M]	2	L2
	OR		
14	Define the term irreversibility process and Reversible process give an example of each? [10M]	2	L2
15	Explain the T-S diagram with neat sketch. [10M]	3	L2
	OR		
16	Describe with neat sketch P-V-T surfaces. [10M]	3	L2
17	Explain the Volumetric analysis of a gas mixture. [10M]	4	L2
	OR		

18	Explain about the Gravimetric analysis [10M]	4	L2
19	Compare the dual, diesel and otto cycles? [10M]	5	L2
	OR		
20	Derive an expression for the efficiency of otto cycle. [10M]	5	L2