



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 2025

THERMODYNAMICS

(ME)

Maximum Marks: 70

Date: 22.12.2025

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.
 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)

		Marks	CO	BTL
1	Define extensive property?	2M	1	L1
2	Distinguish between different types of systems with examples?	2M	1	L1
3	State Clausius Statement of Second law of thermodynamics?	2M	2	L1
4	Mention the various process of Otto cycle.	2M	2	L1
5	What is meant by saturated steam?	2M	3	L1
6	Define Latent heat.	2M	3	L1
7	Define an ideal gas.	2M	4	L1
8	What is meant by the enthalpy of a mixture of ideal gases?	2M	4	L1
9	Write the relation between specific heats and adiabatic index?	2M	5	L1
10	What is mean by mean effective pressure?	2M	5	L1

Part-B

Answer All the following questions.

(5X10M=50Marks)

		Marks	CO	BTL
11	Sketch the constant volume gas thermometer and explain.	10M	1	L2
	OR			
12	Describe briefly thermodynamic systems.	10M	1	L2
13	State and prove Clausius inequality.	10M	2	L2
	OR			
14	Define the term irreversibility process and Reversible process give an example of each.	10M	2	L2
15	Explain Throttling process with neat sketch.	10M	3	L2
	OR			
16	Describe with neat sketch the Phase transformation process.	10M	3	L2
17	Explain the Compressibility chart.	10M	4	L2
	OR			
18	Explain the Avogadro's law.	10M	4	L2
19	Compare the dual, diesel and otto cycles.	10M	5	L2
	OR			
20	Derive an expression for the air standard efficiency of diesel cycle.	10M	5	L2

