R18 Regulation *Subject code:2P5CB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Supplementary Examinations, April 2026

THERMAL ENGINEERING-1

(ME)

Maximum Marks: 70 Date: 17.04.2026 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	What is meant by compression ratio?	2M	1	L1
2	Differentiate between normal combustion and abnormal combustion phenomena incase of SI Engine.	2M	1	L1
3	List the difference between Pre-ignition, auto-ignition and detonation.	2M	2	L1
4	What are the various losses of IC Engine?	2M	2	L1
5	Define Indicated Power.	2M	3	L1
6	Define Friction Power.	2M	3	L1
7	Define Air Compressor.	2M	4	L1
8	Define a single stage compressor.	2M	4	L1
9	Give an example of Dynamic type rotary compressor.	2M	5	L1
10	Define a Rotary compressor.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Discuss the various important qualities of a good ignition system.	10M	1	L2
	OR			
12	Discuss the desirable characteristics of a good combustion chamber for an SI engine.	10M	1	L2
13	Discuss the various methods for improving the anti-knock quality of an SI engine.	10M	2	L2
	OR			
14	What are the types of fuel injection systems? Explain anyone with a neat sketch.	10M	2	L2
15	Explain heat balance sheet in detail.	10M	3	L2
	OR			
16	Derive the expression for the work done by a single stage compressor.	10M	3	L2
17	a) Explain the working of Axial Flow compressor with neat Sketch. b) Explain Velocity diagram of axial flow compressor.	5M 5M	4	L2
	OR			
18	Differentiate between Reciprocating and Rotary Compressors.	10M	4	L2

19	a) What is Air Refrigeration? Discuss Reversed Carnot Cycle in detail. b) Give important applications of refrigeration.	5M 5M	5	L2
	OR			
20	Discuss Simple Vapour Compression Cycle with neat sketch.	10M	5	L2

3.