



R18 Regulation

Subject code:2B2AE

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

Indian In Character International In Excellence

B.Tech II Semester Supplementary Examinations, January 2026

FUNDAMENTALS OF MECHANICAL ENGINEERING

(Common to CE & ME)

Maximum Marks: 70

Date: 20.01.2026

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 the magnitude of Atmospheric pressure?	2M	1	L1
2	What are the different sources of energy?	2M	1	L1
3	What are the types of gas laws?	2M	2	L1
4	Determine the relation between Cp and Cv of gases.	2M	2	L1
5	Define Cycle.	2M	3	L1
6	Define I.C Engine.	2M	3	L1
7	What is a Refrigerant?	2M	4	L1
8	Define Air Compressor and its priming.	2M	4	L1
9	What are the applications of ferrous and non-ferrous materials?	2M	5	L1
10	Write difference between a brake and a clutch.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Explain about global warming and ozone depletion.	10M	1	L2
	OR			
12	Differentiate the terms system, surroundings and boundary. Explain them in detail.	10M	1	L2
13	Derive the expression for work done in i) Isothermal process ii) Polytropic process	10M	2	L2
	OR			
14	Describe the construction and working of Cochran boiler.	10M	2	L2
15	Bring out differences in two stroke and four stroke engines, explain the same with aid of diagrams.	10M	3	L2
	OR			
16	Describe and sketch the Babcock and Wilcox boiler.	10M	3	L2
17	Derive the COP of vapor compression cycle.	10M	4	L2
	OR			

18	Explain the working principle of vapor absorption cycle.	10M	4	L2
19	What are cast irons? Define white cast iron and explain its uses.	10M	5	L2
	OR			
20	Explain with neat sketch of types of Mechanical brakes.	10M	5	L2