R20 Regulation *Subject code: 3E8BD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VIII Semester Supplementary Examinations, May 2026

UTILIZATION OF ELECTRIC ENERGY

(EEE)

Maximum Marks: 70 Date: 08.05.2026 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 are advantages of load equalization?	2M	1	L1
2	What are the Applications of Electric Drive?	2M	1	L1
3	Define dielectric heating.	2M	2	L1
4	State the advantages of electric heating.	2M	2	L1
5	Define utilization factor and solid angle.	2M	3	L1
6	Define the luminous flux.	2M	3	L1
7	State disadvantages of electric braking.	2M	4	L1
8	What are the types of railway service categories?	2M	4	L1
9	State the advantages of regenerative braking.	2M	5	L1
10	Define accelerating weight.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Deduce the necessary expression for the temperature rise of an electric machine.	10M	1	L2
	OR			
12	Explain about load equalization with derivation.	10M	1	L2
13	Explain about seam welding and projection welding methods.	10M	2	L2
	OR			
14	Discuss about the properties of heating elements. Explain about any two types of induction furnaces.	10M	2	L2
15	Explain the construction and working of Sodium vapor lamp.	10M	3	L2
	OR			
16	Explain the construction and working of a mercury vapor lamp.	10M	3	L2
17	Discuss the main features of various train services. What type of train services corresponds to trapezoidal and quadrilateral speed time curves?	10M	4	L2
	OR			
18	Derive the expression for Trapezoidal speed–time curve	10M	4	L2

19	Explain about factors which effects the specific energy consumption.	10M	5	L2
	OR			
20	Deduce the necessary expression to calculate total tractive effort required to run a train on track.	10M	5	L2