R20 Regulation *Subject code:3E1AD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B. Tech I Semester Supplementary Examinations, January 2026

BASIC ELECTRICAL ENGINEERING

(Common to CE & EEE)

Maximum Marks: 70 Date: 19.01.2026 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 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	State Ohm's law with explanation.	2M	1	L1
2	Define Node with example.	2M	1	L1
3	Explain Rectangular form.	2M	2	L1
4	Define phase difference.	2M	2	L1
5	Define efficiency of transformer.	2M	3	L1
6	Explain core losses of the transformers.	2M	3	L1
7	State the function of commutator.	2M	4	L1
8	Define slip in induction motor.	2M	4	L1
9	What is the importance of Fuse?	2M	5	L1
10	What are the types of batteries?	2M	5	L1

Part-B

	Answer All the following questions. (5X10M=50Marks)	Marks	CO	BTL
11	State and explain Thevenin's theorem for DC excitation with an example.	10M	1	L2
	OR			
12	State and explain Reciprocity theorem for DC excitation with an example.	10M	1	L2
13	Derive the Voltage, current and of RL series dc circuit factor.	10M	2	L2
	OR			
14	Derive the expression for impedance (Z), phase angle (Θ) and power factor (cosϕ) for RC series circuit with relevant phasors.	10M	2	L2
15	Explain the principle of operation of transformer and derive the Emf equation.	10M	3	L2
	OR			
16	Explain about Auto-Transformer with neat diagram.	10M	3	L2
17	Explain the working principle and construction parts of dc machine with neat diagram.	10M	4	L2
	OR			

18	Explain the construction and working principle of 3-phase synchronous generator.	10M	4	L2
19	Explain about SFU, MCB, MCCB.	10M	5	L2
	OR			
20	Explain about service mains, meter board and distribution board in detail.	10M	5	L2