R22 Regulation *Subject code:4E1AC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech I Semester Supplementary Examinations, January 2026

BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(CE)

Maximum Marks: 60 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 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 (10X1M=10 Marks)		Marks	CO	BTL
1.a	State KVL.	1M	1	L1
b	Define power factor.	1M	1	L1
c	Full Form of MCCB.	1M	2	L1
d	Define Efficiency.	1M	2	L1
e	Define motor.	1M	3	L1
f	What is the working principle of generator?	1M	3	L1
g	List the applications of Zener diode	1M	4	L1
h	What are the merits of full wave rectifier?	1M	4	L1
i	Write a note on transistor construction?	1M	5	L1
j	Draw the functional diagram of JFET?	1M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	Explain about the Kirchoff's current law and Kirchoff's voltage law with an example.	10M	1	L2
	OR			
3	Derive the expression for average value, RMS value of sinusoidal waveform.	10M	1	L2
4	Explain the construction & working of MCB.	10M	2	L2
	OR			
5	Explain the different methods of earthing.	10M	2	L2
6	Derive, from the first principle, an expression for the torque developed in a DC motor.	10M	3	L2
	OR			
7	Explain the construction and working principle of Synchronous generators.	10M	3	L2

8	Explain the V-I characteristics of Zener Diode. Write applications of Zener Diode.	10M	4	L2
	OR			
9	Draw and explain the CLC filter with full wave rectifier and derive the expression or ripple factor.	10M	4	L2
10	Draw and explain input and output characteristics of NPN transistor in CB configuration.	10M	5	L2
	OR			
11	With the help of neat sketches and characteristic curves explain the construction &operation of a JFET and mark the regions of operation on the characteristics.	10M	5	L2