R20 Regulation *Subject code:3E2AN*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B. Tech II Semester Supplementary Examinations, June 2026

BASIC ELECTRICAL ENGINEERING

(Common to ECE, CSE, IT, (CSE(AI&ML) & (CSE(DS))

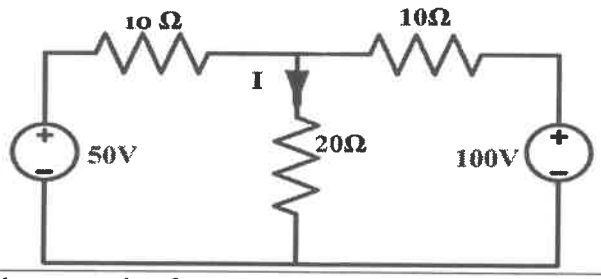
Maximum Marks: 70 Date: 24.06.2026 Duration: 3 hours

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.	2M	1	L1
2	State superposition theorem	2M	1	L1
3	Define instantaneous value	2M	2	L1
4	What are the advantages of alternating quantities?	2M	2	L1
5	Define transformation ratio	2M	3	L1
6	Explain about mutual inductance.	2M	3	L1
7	State the function of commutator	2M	4	L1
8	Define slip in induction motor	2M	4	L1
9	What are 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	Derive the expression for star to delta and delta to star transformation?	10M	1	L2
	OR			
12	Calculate the current (I) flowing through 20 Ω using super position theorem 	10M	1	L2
13	Derive the expression for average value, RMS value, Form factor and Peak factor of sinusoidal waveform.	10M	2	L2
	OR			
14	Derive the relation between phase and line voltages and currents in a 3-phase star connected system?	10M	2	L2

15	Explain the OC and SC test of a single-phase transformer with neat diagram	10M	3	L2
	OR			
16	Explain the construction and working principle of a single-phase transformer	10M	3	L2
17	a) Derive the Emf equation of Dc Generator. b) Calculate the emf generated by a 6 pole dc generator having 480 conductors and driven at a speed of 1200 rpm. The flux per pole is 0.012 wb. Assume the generator to be i) lap wound ii) wave wound.	5M 5M	4	L2
	OR			
18	Explain the construction and working principle of 3-phase synchronous generator	10M	4	L2
19	Explain the different types of Earthing methods in detail?	10M	5	L2
	OR			
20	Explain the different types of MCB's in detail.	10M	5	L2