Regulation R20 *Subject code:3E2AN*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech II Semester Supplementary Examinations, January 2024

BASIC ELECTRICAL ENGINEERING

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

Maximum Marks: 70 Date:29.01.2024 Duration: 3 hours

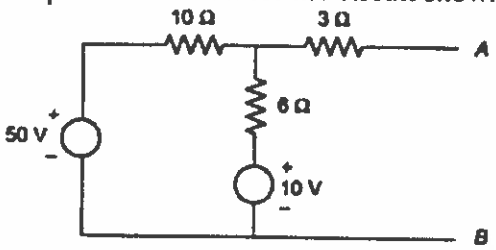
Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

	All the following questions carry equal marks (10x2M=20 Marks)	CO	Bloom Tx
1	Define current and voltage.	CO1	L1
2	State Reciprocity theorem.	CO1	L2
3	Define frequency.	CO1	L1
4	Write the concept of phase and phase difference	CO1	L4
5	Define voltage regulation of a transformer	CO2	L1
6	Write the iron losses of the transformers	CO2	L2
7	State the function of commutator	CO3	L2
8	Define slip in induction motor	CO3	L1
9	What is fuse.	CO4	L3
10	Explain the types of batteries.	CO4	L2

Part-B

Answer All the following questions. **(5X10M=50Marks)**

11	Derive the expression for star to delta and delta to star transformation?[10]	CO1	L3
	OR		
12	a) State and explain Thevenin's theorem with suitable example. [5] b) Find Thevenin's equivalent circuit for the circuit shown below [5] 	CO1	L2
13	A voltage wave represented by V=200sin314t find [10] i) Maximum value ii) Average value iii) RMS value iv)Frequency v) Time period	CO1	L3

	OR		
14	Derive the expression for impedance (Z), phase angle (Θ) and power factor (cosϕ) for RLC series circuit with relevant phasors. [10]	CO1	L3
15	a) Derive the Emf equation of transformer. [5] b) A 50KVA, 1100/400 V, 50Hz single phase transformer has 80 turns on the primary. Calculate: [10] i) the number of turns on the secondary ii) the full load primary and secondary currents and iii) the maximum value of the flux	CO2	L3
	OR		
16	Explain in detail different types of losses in transformer. [10]	CO2	L2
17	a) Explain the constructional features of DC machine with neat diagram. [5] b) Derive the EMF equation of the DC generator? [5]	CO3	L2
	OR		
18	Explain the construction and working principle of 3-phase synchronous generator. [10]	CO3	L2
19	a) Explain briefly the concept of wiring system and earthing. [5] b) Explain the types of wires and cables. [5]	CO4	L2
	OR		
20	Explain in detail the types of earthing with neat diagrams. [10]	CO4	L2