Regulation R20 *Subject code: 3E1AD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

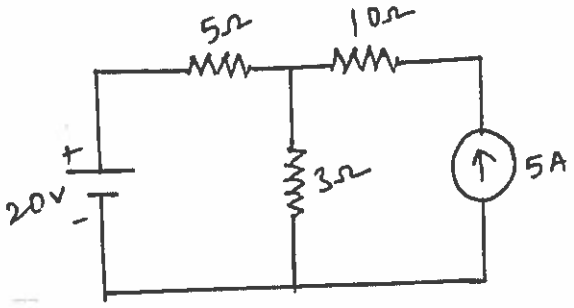
B.Tech I Semester Supplementary Examinations, January 2024

BASIC ELECTRICAL ENGINEERING

(Common for EEE & CE)

Maximum Marks: 70 Date:27.01.2024 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 Active and Passive elements.	CO1	L1
2	State Norton's theorem	CO1	L1
3	Define time period	CO1	L1
4	Define i) form factor ii) peak factor	CO1	L1
5	Define transformation ratio	CO2	L1
6	Explain about mutual inductance.	CO2	L2
7	Write down the Emf equation of a dc motor.	CO3	L1
8	What is principle operation of 3-phase induction motor	CO3	L1
9	Explain about Earthing.	CO4	L2
10	List the types of cables.	CO4	L1
	Part-B		
Answer All the following questions. (5X10M=50Marks)			
11	Explain derivation of delta-star conversion equations. [10M]	CO1	L2
	OR		
12	Find the current response across 3Ω resistor using superposition theorem. [10M] 	CO1	L3
13	Explain following terms: [10M] i) form factor ii) peak factor iii) phase difference iv) frequency	CO1	L2

	v)Power factor ?		
	OR		
14	Derive the expression for impedance (Z), phase angle (Θ) and power factor (cosϕ) for RC series circuit with relevant phasors. [10M]	CO1	L3
15	Explain the principle of operation of transformer and derive the Emf equation. [10M]	CO2	L2
	OR		
16	Explain about Auto-Transformer with neat diagram. [10M]	CO2	L2
17	a) Derive the Emf equation of Dc Generator. [5M] 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]	C03	L3
	OR		
18	Explain the torque –speed characteristics of 3-phase induction motor. [10M]	CO3	L2
19	Explain the different types of MCB'S in details. [10M]	CO4	L2
	OR		
20	Explain about service mains, meter board and distribution board in detail. [10M]	CO4	L2