R22 Regulation *Subject code:4B1AL*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech I Semester Regular/Supplementary Examinations, January 2024

Basic Electrical Engineering

(Common to CSE(DS) & IT)

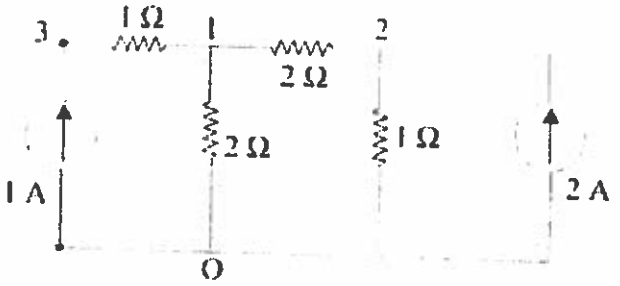
Maximum Marks: 60 Date:27.01.2024 Duration: 3 hours

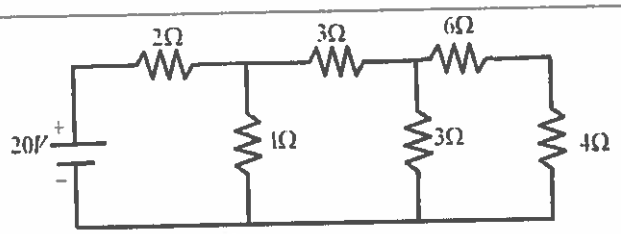
Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

		All the following questions carry equal marks (10x1M=10 Marks)	CO No.	Bloom Tx
1.	a	Write down the expression of equivalent resistance for 'n' number of resistors in series connection.	CO1	I
	b	State Thevenin theorem.	CO1	I
	c	Define Average value and RMS value.	CO2	III
	d	Define Phasor and Phase angle.	CO2	I
	e	Compare a single phase and three phase transformers.	CO3	II
	f	Define Transformer efficiency.	CO3	II
	g	Present the significance of back emf.	CO4	II
	h	Mention the application of DC generator.	CO4	II
	i	What is the difference between switch fuse unit and MCCB?	CO5	II
	j	Write about battery backup system?	CO5	II

Part-B

		Answer All the following questions. (5X10M=50Marks)		
2		A. State and explain Kirchoff's laws. (5) B. Determine the voltages 1 and 2 of the network in Fig. by nodal analysis. (5) 	CO1	III
		OR		
3		A. Find the current flowing through 4 ohm resister for the circuit given below using Thevenin's Theorem. (5)	CO1	V

	 B. Two resistances of 20 ohms and 30 ohms respectively are connected in parallel. A third resistance of 6 ohms is connected in series with the combination and a DC supply of 220 V is applied to the ends of the completed circuits. Calculate the current in each resistance. (5)		
4	Explain about form factor, peak factor, phase difference, frequency and maximum peak. (10)	CO2	V
	OR		
5	Explain active power, reactive and apparent power with phasor diagram. (10)	CO2	II
6	Discuss about the working principle of a transformer. What is an ideal transformer? Draw the phasor diagram. (10)	CO3	II
	OR		
7	Describe the open circuit tests on a single-phase transformer. (10)	CO3	II
8	Explain the working principle of three phase induction motor with neat diagram. (10)	CO4	II
	OR		
9	With a neat circuit diagram, Explain the construction and principle of operation of DC Generator. (10)	CO4	III
10	Discuss the basic concepts of household wiring and explain the various methods of electrical wiring system. (10)	CO5	IV
	OR		
11	Explain the concept and various types of earthing. (10)	CO5	II