AR20

CODE: 20EST101 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech I Semester Regular Examinations, August, 2021

BASIC ELECTRICAL ENGINEERING

(Common to CIVIL, EEE, ECE)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit

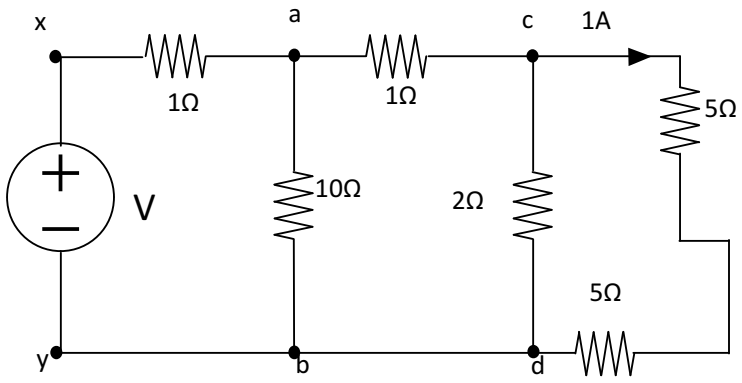
All Questions Carry Equal Marks

All parts of the Question must be answered at one place

UNIT-I

1. a) Define i) charge ii) voltage iii) current iv) resistance 4M

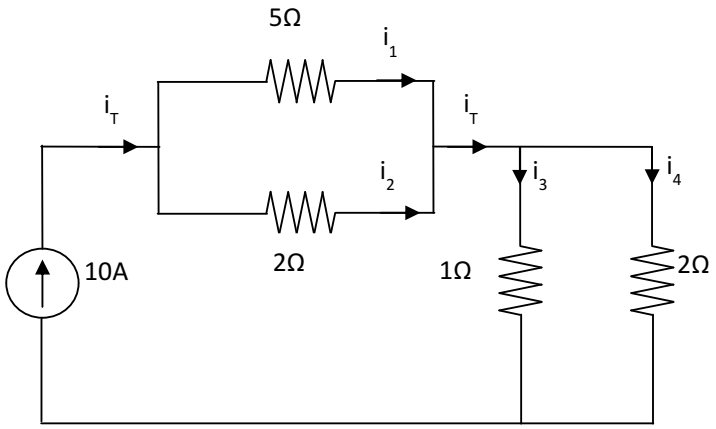
   b) Find V using Kirchhoffs laws 6M



(OR)

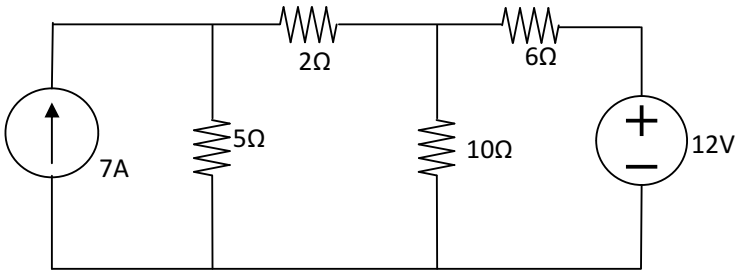
2. a) State and explain Kirchhoff's laws . 5M

   b) Find I_1, I_2, I_3, I_4 5M



UNIT-II

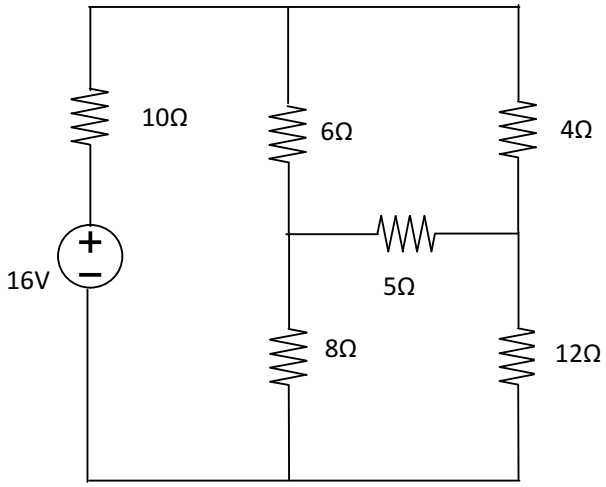
3. a) Find current through 2 ohms resistor using node analysis. 5M



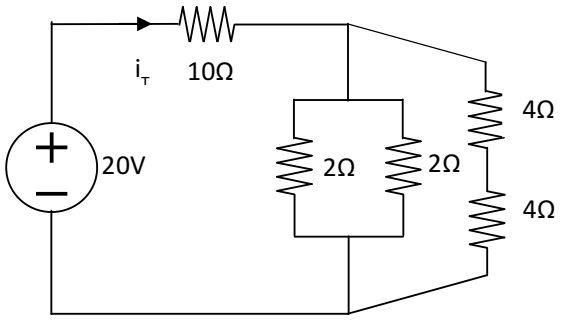
b) Explain the delta-star transformation 5M

(OR)

4. a) Find the current through 5 ohms using mesh analysis method. 6M



b) Find the total current supplied by source. 4M



UNIT-III

5. a) A series RC circuit with R = 100 Ωand C = 3.3 μF is connected to a 20 V RMS, 1 kHz supply. Determine the circuit current, the resistor voltage, the capacitor voltage and the phase angle of the current with respect to the supply voltage. 6M

   b) Define the following i) RMS value, ii) Average value 4M

(OR)

6. a) Derive the expression for average and RMS value of full wave rectified sine wave. 5M

   b) A sine wave generator supplies a 500Hz 10V rms to a 2kohms resistor in series with a 0.1 μF capacitor. Determine the total impedance, current phase angle, capacitive voltage and resistive voltage. 5M

UNIT-IV

7. a) Define the following i) magnetic flux ii) flux density iii) susceptibility 4M

   b) Compare between magnetic and electrical circuits. 6M

(OR)

8. a) Define self inductance and mutual inductance. 4M

   b) Two similar coils connected in series gave a total inductance of 600 mH and when one of the coil is reversed, the total inductance is 300 mH. Determine the mutual inductance between the coils and coefficient of coupling. 6M

UNIT-V

9.	a)	Explain the construction of a DC machine with a neat sketch.	6M
	b)	Derive the EMF equation of DC generator.	4M

(OR)

10.	a)	Explain about various applications of DC generators	4M
	b)	Explain the principle of operation of a DC generator with the help of a neat sketch.	6M

UNIT-VI

11.	a)	Explain why a 3-point starter is required to start a DC motor	6M
	b)	Explain the working principle of a DC motor	4M

(OR)

12.	a)	Explain the various speed control methods of DC Motors.	5M
	b)	Derive the Torque developed by DC Motor.	5M

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CODE: 20ESI102 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech I Semester Regular Examinations, August, 2021

PROGRAMMING FOR PROBLEM SOLVING

(Common to MECH, CSE, IT)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	What are operators in C? Explain with examples.	**5M**
	b)	Describe the structure of the C Program.	5M
		(OR)	
2.	a)	Explain about data types used in 'C' language.	5M
	b)	Write an algorithm to find the factorial of a given number.	5M

UNIT-II

3.	a)	Explain about while and do-while loops. Distinguish between them.	5M
	b)	Write a C Program to find the roots of a quadratic equation.	5M
		(OR)	
4.	a)	Explain if, if-else, nested if-else and else if ladder with proper syntax.	5M
	b)	Show how break, and continue statements are used with example program.	5M

UNIT-III

5.	a)	Define array. Explain the process of declaration and initialization of arrays.	5M
	b)	Develop a C Program that read N integers and arranges them in ascending order.	5M
		(OR)	
6.		Write a C Program implementing Matrix Multiplication using arrays.	10M

UNIT-IV

7.	a)	Explain different parameter passing techniques in functions with examples	5M
	b)	Find GCD of two numbers using recursion.	5M
		(OR)	
8.		What is recursion? Explain. Write a C Program using recursion function for Binary to Decimal conversion.	10M

UNIT-V

9.	a)	Explain structure within a structure with an example.	5M
	b)	Explain the difference between array and structure.	5M
		(OR)	
10.	a)	Write a program to maintain a record of 'n' employee detail using an array of structures with three fields (id, name, salary) and print the details of the employees whose salary is more than 5000.	5M
	b)	Define structure and explain how to access the structure.	5M

UNIT-VI

11.		What is file? Explain various function used for opening closing and processing a file in 'C' language with an example program.	10M
		(OR)	
12.		Write a C Program which counts the number of characters, words and lines in a file and prints on the screen.	10M