AR20

CODE: 20ESI102 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech II Semester Regular/Supplementary Examinations, August-2022

PROGRAMMING FOR PROBLEM SOLVING

(Common to CE, 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)	What is the Structure of the C Program and explain Basic I/O Statements?	4M
	b)	What is a Flow Chart and Explain about different symbols used in the Flow Chart?	6M
		(OR)	
2.	a)	Explain in detail about various types of Data Types in C Language.	5M
	b)	Explain C Constants and Rules for Declaring the Variables.	5M

UNIT-II

3.	a)	Write about the switch statement and its flow chart with suitable examples.	5M
	b)	Write a C Program to find the roots of a quadratic equation.	5M
		(OR)	
4.	a)	Write about if and if-else statements with the general form and a flow chart with suitable examples.	4M
	b)	Write the general form of a for-loop. Write a C Program to generate the prime numbers between the given two numbers using the for-loop.	6M

UNIT-III

5.	a)	Define String? Write about any two string handling functions with an example program.	5M
	b)	Write a C Program to find the largest number in an array	5M
		(OR)	
6.	a)	What is a Pointer? Write a 'C' program to illustrate the use of pointers in arithmetic operations.	5M
	b)	Explain Static and Dynamic Memory Allocations with suitable examples.	5M

UNIT-IV

7.	a)	Explain functions and pointers in C.	4M
	b)	Explain in detail about pass by value and pass by reference. Explain with a sample Program?	6M
		(OR)	
8.	a)	Write about storage classes in C?	5M
	b)	Write a C Program to count the digits of a given number using recursion.	5M

UNIT-V

9.	a)	Write about the definition, declaration, and accessing of structure members with suitable examples	6M
	b)	Write any C Program using Union	4M
		(OR)	
10.	a)	What are the differences between structure and union? Give suitable example programs for each structure and union.	6M
	b)	What are nested structures and explain with a suitable example program.	4M

UNIT-VI

11.	a)	What is a File? Explain different types of files.	4M
	b)	Explain the following. i). File Opening Modes. ii). File I/O Functions.	6M
		(OR)	
12.	a)	Explain Random Access Functions and Pre-processor Directives in files.	6M
	b)	Write a C program to count the number of characters, words, and lines in a file.	4M

AR20

CODE: 20EST101 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech II Semester Regular/Supplementary Examinations, August-2022

BASIC ELECTRICAL ENGINEERING

(Common to ME, CSE, IT & AIML)

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

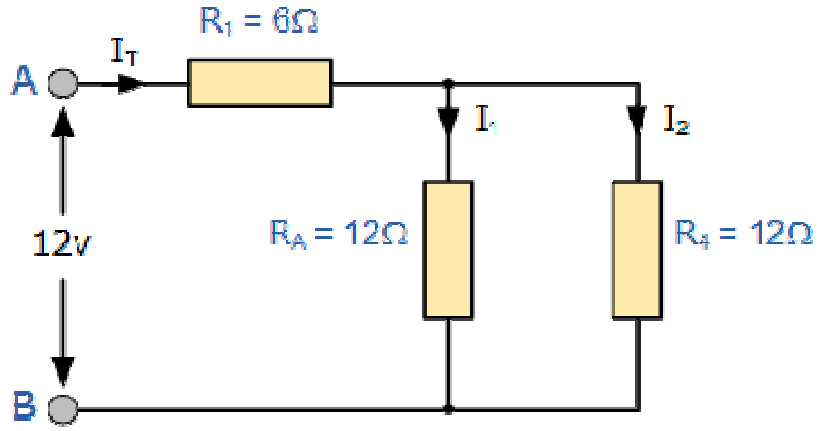
Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Explain Kirchoff's laws with numerical example 6M
   b) Differentiate between dependent and independent sources 4M

(OR)

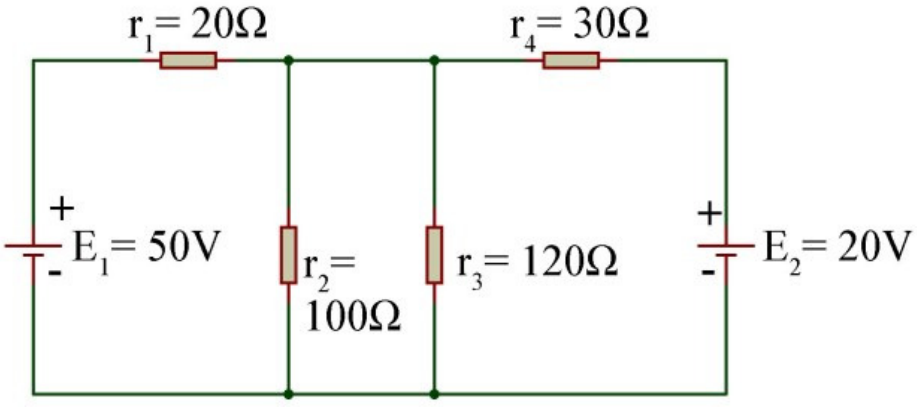
2. a) Calculate the current through each resistor in the circuit shown below 6M



   b) Define the following (i) Current (ii) Voltage iii) Energy iv) Power 4M

UNIT-II

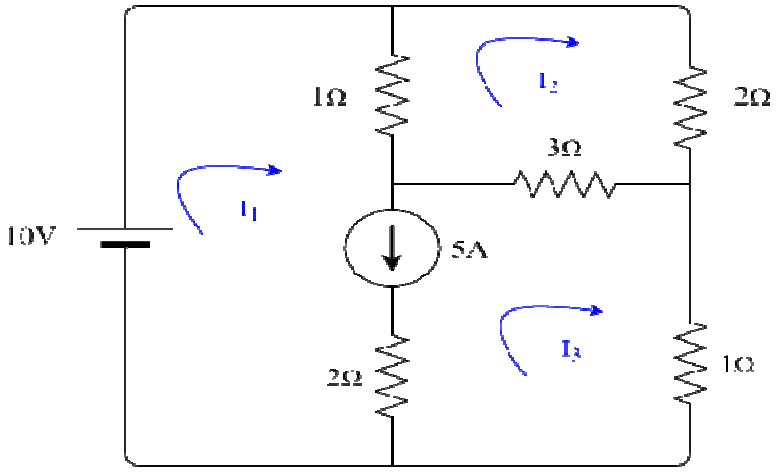
3. a) Using Nodal Analysis find the current through resistor r_2 5M



   b) Three resistors 3Ω each are connected in star. Transform the network into equivalent delta network. 5M

(OR)

4. a) Calculate the currents I1, I2 and I3 5M



b) Derive the transformation of a delta network to star network 5M

UNIT-III

5. Derive the expression for average and RMS value of sine wave. 10M

(OR)

6. A series RC circuit with R = 100 Ωand C = 3.3 μF is connected to a 230 V RMS, 50Hz supply. Determine the circuit current, the resistor voltage, the capacitor voltage and the phase angle of the current with respect to the supply voltage. 10M

UNIT-IV

7. a) Define the following i) magnetic flux ii) flux density iii) susceptibility 6M
   b) Find the value of x if the Mutual inductance is x H, the inductance of coil 1 is 2H and the inductance of coil 2 is 8H. The coupling coefficient is 0.5 4M

(OR)

8. a) Explain about dot convention in magnetic circuits with neat diagrams 5M
   b) Derive the expression for coefficient of coupling in magnetic circuits. 5M

UNIT-V

9. a) Discuss the principle of operation of a DC generator with neat circuit 6M
   b) Discuss various applications of DC generators. 4M

(OR)

10. a) Derive the expression for EMF of a DC generator 6M
    b) Discuss the characteristics of a DC shunt generator 4M

UNIT-VI

11. a) Discuss various applications of DC motors 5M
    b) Derive the Torque developed by DC Motor. 5M

(OR)

12. Explain the working of 3-point starter with a neat sketch. 10M

AR18

CODE: 18EST101 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech II Semester Supplementary Examinations, August-2022

BASIC ELECTRICAL ENGINEERING

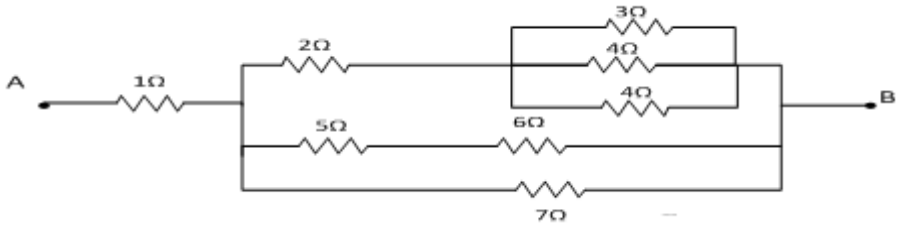
(Common to CE, CSE, IT Branches)

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

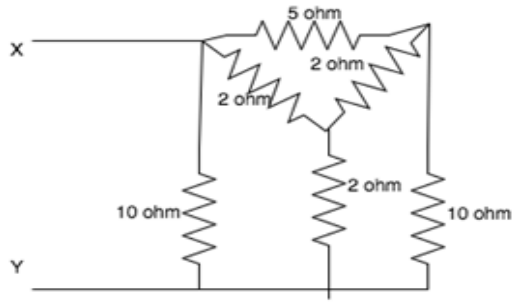
UNIT-I

1. a) State and explain Kirchhoff Voltage Law with example. 6M
   b) Determine the equivalent resistance between the two points A and B shown in figure 6M



(OR)

2. a) Find the equivalent resistance between the terminals X and Y by using star-delta transformation technique. 8M

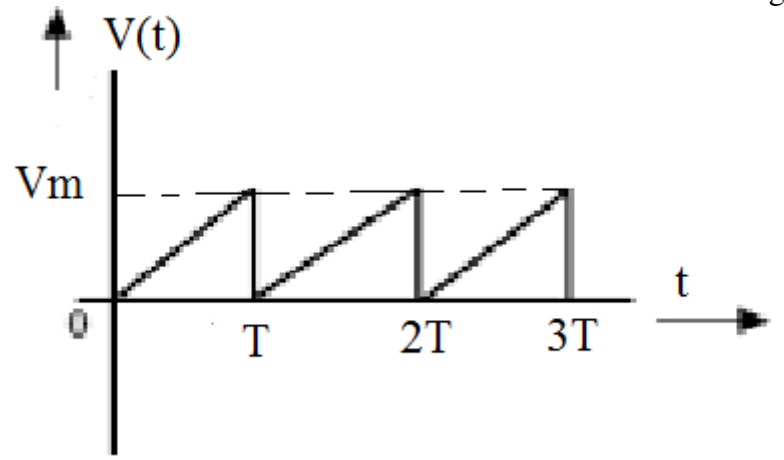


   b) Explain Ohm's law with its limitations. 4M

UNIT-II

3. a) Define the following 6M
(i) frequency (ii) cycle (iii) RMS value (iv) average value (v) form factor and (vi) peak factor of an alternating quality.

b) Find the RMS value of the Saw-tooth wave form shown in Figure 6M



(OR)

4. a) A circuit contains two impedances $Z_1 = (3 + j4)\ \Omega$ and $Z_2 = (5 - j9)\ \Omega$ in series and connected to 50V, 50 Hz supply. Determine the current through the impedances and voltage across each impedance. Also find the power factor of the circuit. 6M

b) Determine current passing through RC series circuit for supply voltage of $v=v_m\sin\omega t$ using sinusoidal analysis 6M

UNIT-III

5. a) Derive the EMF equation of a DC generator. 6M

b) What is OCC characteristic of a shunt generator? Explain. 6M

(OR)

6. a) Distinguish between internal and external characteristics of a DC generator. 6M

b) What are the different types of DC motors? Mention the application of each motor. 6M

UNIT-IV

7. Explain about the O.C and S.C tests of a transformer. 12M

(OR)

8. a) Explain various losses of a transformer. 6M

b) A single phase transformer is connected to a 230V, 50Hz supply. The net cross sectional area of the core is 60 cm^2. The number of turns in primary is 500 and in the secondary is 1000. Determine (i) transformation ratio (ii) emf induced in the secondary winding (iii) maximum flux density in the core 6M

UNIT-V

9. a. Explain about the working principle of 3 phase induction motor 6M

b. Derive the expression for torque equation of 3 phase induction motor. 6M

(OR)

10. a) Explain torque-slip characteristic of three-phase induction motor. 6M

b) Three phase induction motor is wound for 4-poles and is supplied from 400V, 50Hz supply. Calculate (i) synchronous speed (ii) speed of the motor when the slip is 2% and (iii) the rotor frequency 6M

AR18

CODE: 18EST102 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech II Semester Supplementary Examinations, August, 2022

PROGRAMMING FOR PROBLEM SOLVING

(Common to EEE, ME Branches)

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 Algorithm. Write the Characteristics of an algorithm. Write an algorithm to find whether given number is even or odd.	7M
	b)	Explain Structure of C program with an example	5M
		(OR)	
2.	a)	Explain about arithmetic and logical operators in c language.	6M
	b)	Evaluate the following expression (a+b)*c+d*e/f where a=b=c=2 ,d=3,e=1 ,f=1	6M

UNIT-II

3.	a)	Explain about selection statements in c language	6M
	b)	Write a C program to find whether given number is prime or not	6M
		(OR)	
4.	a)	Differentiate between entry control and exit control loops with examples.	6M
	b)	Write a C program to print the roots of quadratic equation using nested if-else statement	6M

UNIT-III

5.	a)	Write about declaration and accessing of Two-Dimensional arrays with suitable example.	6M
	b)	Write a C program to find power of two numbers using functions	6M
		(OR)	
6.	a)	Explain about storage classes in C	6M
	b)	Write a C program to find sum of elements in a 1-D Array	6M

UNIT-IV

7.	a)	Explain about Dynamic Memory Allocation with an example program?	6M
	b)	Explain about pointer Arithmetic.	6M
		(OR)	
8.	a)	What is an array of pointers and pointers to an array? Summarize the difference between both of them.	6M
	b)	Explain parameter passing techniques with suitable examples.	6M

UNIT-V

9.	a)	What is structure? How to declare, initialization of a structure, accessing a structure elements with examples.	6M
	b)	Explain file-handling functions available in 'C' with suitable examples.	6M
		(OR)	
10.	a)	Distinguish between Structure and Union	6M
	b)	Write a C program to copy the content of one file into another?	6M

AR18

CODE: 18ECT103 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech II Semester Supplementary Examinations, August-2022

ELECTRONIC CIRCUITS

(Electronics and Communication Engineering)

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)	Draw the circuit diagram and explain the operation of full wave rectifier.	6M
	b)	Define and derive the terms as referred to HWR circuit. i) PIV ii) Average d.c. voltage iii) RMS current iv) Ripple factor.	6M

(OR)

2.	a)	Derive the expressions for Ripple factor, Conversion Efficiency of a Full wave rectifier.	6M
	b)	A sinusoidal voltage whose Vm=26V is applied to half-wave rectifier. The diode may be considered to be ideal and R_L=1.2 KΩ is connected as load. Find out peak value of current, RMS value of Current, DC value of current and Ripple factor.	6M

UNIT-II

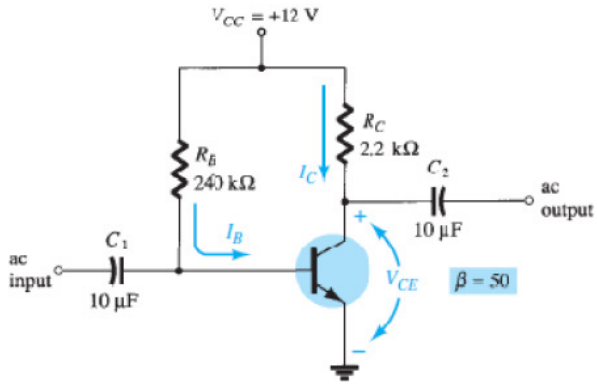
3.	a)	Derive the expression for the ripple factor in a full-wave rectifier using inductor filter and explain its operation.	6M
	b)	Design LC filter for a Full-wave rectifier circuit to provide an output voltage of 10 V with a load current of 200 m A and the ripple is limited to 2%.	6M

(OR)

4.	a)	Explain how the zener diode is used for regulation purpose.	6M
	b)	Draw and explain the circuit diagram of full wave rectifier with L-section filter.	6M

UNIT-III

5.	a)	Draw the circuit diagram of fixed bias and derive the expression for Stability factor for it.	6M
	b)	For the circuit shown below, determine I_B, I_C, V_{CE}, V_B, V_C and V_{BC}.	6M



(OR)

6.	a)	Explain the different methods of FET bias.	6M
	b)	Explain about thermistor and sensistor compensation circuits.	6M

UNIT-IV

7.	a)	Using approximate h parameter model for a CE circuit obtain the expression for i)A_I ii) R_I iii) A_V iv) R_O	6M
	b)	List out the few comparisons of Transistor amplifier configurations in detail.	6M

(OR)

8.	a)	Define h-parameters along with its units.	6M
	b)	Determine the value of hoe in terms of CB h-parameters	6M

UNIT-V

9.	a)	Explain the principle of negative feedback in amplifiers. Show quantitatively the effect of negative feedback on (i) Gain (ii) Stability (iii) Noise (iv) Distortion.	6M
	b)	Draw the block diagram of Current Shunt feedback system and derive the expression for Rif and Rof.	6M

(OR)

10.	a)	Show that input resistance increases with series mixing.	6M
	b)	The open loop gain of an amplifier is 100. What will be the overall gain when negative feedback of 0.5 is applied to the amplifier?	6M

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AR16

CODE: 16EE1004 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech II Semester Supplementary Examinations, August-2022

BASIC ELECTRICAL &ELECTRONICS ENGINEERING

(Common to CE & ME branches)

Time: 3 Hours **Max Marks: 70**

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

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UNIT-I

1.	a.	State Ohm's law with numerical example.	7M
	b.	Two resistors are connected in parallel across 200V supply take 10A from the mains. If the power dissipated in one resistor is 800W, then determine the value of the other resistor?	7M
		(OR)	
2.	a.	State and explain Faraday's Laws of electromagnetic induction?	7M
	b.	A flux of 0.5 mWb is produced by a coil of 900 turns wound on a ring with a current of 3 A in it. Calculate (i) the inductance of the coil (ii) the e.m.f. induced in the coil when a current of 5 A is switched off, assuming the current to fall to zero in 1 millisecond and (iii) the mutual inductance between the coils, if a second coil of 600 turns is uniformly wound over the first coil?	7M

UNIT-II

3.		Explain the construction of DC generator with neat sketch	14M
		(OR)	
4.	a.	What are the different types of dc generators based on the way of excitation?	7M
	b.	Draw and Explain the Internal and External Characteristics of DC Generator.	7M

UNIT-III

5.		Explain how the OC and SC tests are conducted on a Transformer?	14M
		(OR)	
6.	a.	Draw and explain the torque slip characteristics of an induction motor?	7M
	b.	Differentiate between the Squirrel cage and wound cage type of rotors in Induction motors.	7M

UNIT-IV

7.		Explain how the regulation of an alternator is determined by the synchronous impedance method?	14M
		(OR)	
8.	a.	Describe the construction and working of PMMC Instrument	7M
	b.	Explain the working of attraction type Moving iron Instrument	7M

UNIT-V

9.	a.	Explain the working of half-wave rectifier with neat waveforms	7M
	b.	An a.c. supply of 230 V is applied to a half-wave rectifier circuit with a load of 10ohms. Assume the diode to be ideal**,** Find (i) The output voltage, (ii) the peak inverse voltage and (iii) Load current.	7M
		(OR)	
10.	a.	Explain the working of a NPN transistor	7M
	b.	Explain the CB configurations of a transistor	7M

AR13

Code: 13CS1001 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I B.Tech. II Semester Supplementary Examinations, August, 2022
COMPUTER PROGRAMMING
(Common to EEE & ECE)

Time: 3 Hours **Max Marks: 70**

PART – A

Answer all questions **[10X1=10M]**

1. a) What is meant by recursion.
   b) How does a structure differ from union?
   c) Write the structure of if statement?
   d) What is ternary operator and write an example.
   e) What is the purpose of **continue** statement?
   f) What is a pre-processor directive? Give two examples.
   g) What is the difference between reading a string with scanf() function and gets() function?
   h) Define an algorithm? Write few properties of an algorithm.
   i) What is the output of the following C program?

```
void main ()
{ int x=4,y=0,z;
while(x>=0)
{
   x--;
  y++;
if(x==y)
continue;
else
printf("\nx:%d y:%d",x,y);
}
}
```

   j) What is a pointer? Write few applications of pointers?

PART-B

Answer one question from each unit **[5X12=60M]**

Unit-I

2) a) Define a flow chart ? Draw the flow chart for finding whether the given number is even number or not.
   b) Explain in detail about the various data types in C language. [6M+6M]

(OR)

3) a) Explain in detail about frame work for problem solving.
   b) Explain about unary and relational operators with example programs. [6M+6M]

Unit-II

4. a) Explain about for, while, do-while loop control structures with its syntax, flow charts and examples,.
   b) Write a program to add first ten terms of the following series using a **for** loop:
   $1^2+2^2+3^2+4^2+$ ..... [6M+6M]

(OR)

5. a) Write a C Program to produce the following output using nested loops.

```
   1
  2  3
 4  5  6
7  8  9  10
```

   b) Explain about switch statement with syntax and flow chart .Write program that illustrates all arithmetic operations using switch statement. [6M+6M]

Unit-III

6. a) What is an array? Write a program to find the largest element from array?
   b) Define a string. Write a program for calculating sting length and string concatenation without using string library functions.

[6M+6M]

(OR)

7. a) Explain parameter passing techniques with example programs.
   b) What is the use of storage class? Write about all storage classes with examples?

[6M+6M]

Unit-IV

8. Explain in detail about definition, declaration and initialization of a structure? Define a structure called student with fields name, roll no, marks and write a program for creating the details of 10 students and sort them according to their percentage.

[12M]

(OR)

9. a) Write a 'C' program to illustrate the use of command line arguments.
   b) Describe various dynamic allocation and de-allocation functions with examples.

[6M+6M]

Unit V

10. a) Define a file and elaborately discuss about reading, opening and closing of a file.
    b) Write program to create a file with some textual information and display every third character in a file. [4M+8M]

(OR)

11. a) Write a program to copy the contents of one file to another.
    b) Write a program to count the number of vowels and spaces in a file.

[6M+6M]