AR18

CODE: 18EST102 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech I / I B.Tech II Semester Supplementary Examinations, Oct / November-2021

PROGRAMMING FOR PROBLEM SOLVING

(Common to All 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 factorial of a given number.	6M
	b)	Explain about conditional operator and write a program to find largest of three numbers using conditional operator	6M
		(OR)	
2.	a)	Explain about different constants with giving examples for each.	6M
	b)	What is operator precedence? Explain with a suitable example.	6M

UNIT-II

3.	a)	Explain different types of if statements with examples.	6M
	b)	Write a C program to check whether the given number is leap year or not.	6M
		(OR)	
4.	a)	Differentiate break and continue statements with suitable examples.	6M
	b)	Write a C program to read two numbers and an arithmetic operator. Using switch case statement, perform the required arithmetic operations and display the results.	6M

UNIT-III

5.	a)	Define 2D integer array and write a C program to find the transpose of a given matrix.	6M
	b)	Define storage class and explain extern and static storage classes in detail with examples.	6M
		(OR)	
6.	a)	Define function and outline the structure of a user defined function with an example.	6M
	b)	Explain any three built-in string handling functions with suitable examples.	6M

UNIT-IV

7.	a)	What is a pointer? Illustrate pointers with a sample code to declare, assign and access. What are its merits and demerits?	6M
	b)	What is dynamic memory allocation? Differentiate calloc() and malloc() functions.	6M
		(OR)	
8.	a)	How pointer variables are passed to a function? Illustrate with a C program to swap two variables.	6M
	b)	Difference between pointer to an array and array of pointers	6M

UNIT-V

9.	a)	Compare a structure and union.	6M
	b)	Define File? How do you declare a file? Explain different modes of operations on files with examples.	6M
		(OR)	
10.	a)	Explain the concept of nested structure with a suitable example.	6M
	b)	Write a program to count number of characters, words and lines in a file.	6M

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AR18

CODE: 18ECT101 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech I Semester Supplementary Examinations, Oct / November-2021

ELECTRONIC DEVICES

(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)	Explain the semiconductors, insulators and metals classification using energy band diagrams	7 M
	b)	Find the concentration of holes and electrons in a p-type silicon at 300^0 K assuming resistivity as 0.02 Ω – cm. Assume μp = 476 m^2/V-sec, $n_i = 1.45 \times 10^{10}$ per cm^3	5 M
		(OR)	
2.	a)	Derive expression for the continuity equation	6 M
	b)	Explain the Diffusion and Drift currents for a semiconductor.	6 M

UNIT-II

3.	a)	Derive the diode current equation	8 M
	b)	A silicon diode has reverse saturation current of 2.5 μA at 300^0 K. Find forward voltage for a forward current of 10 mA.	4 M
		(OR)	
4.	a)	Explain the construction and working of Zener diode.	8 M
	b)	Compare and contrast Zener breakdown and Avalanche breakdown	4 M

UNIT-III

5.	a)	Draw the input & output characteristics of a PNPtransistors in CB configuration & explain	7M
	b)	For a silicon, α=0.995 emitter current is 10mA & leakage current I_{c0}=0.5μA. Find I_c ,I_B and β	5 M
		(OR)	
6.	a)	Compare three transistor Configurations	7M
	b)	Derive the relationship between α and β. Given I_E=2.5 mA, α=0.98 and I_{CBO}= 10μA. Calculate I_c , I_B	5 M

UNIT-IV

7.	a)	Explain the working of FET with neat diagram and relevant characteristics. Indicate each region of the characteristics	7M
	b)	Calculate the values of I_D and gm for V_{GS} = -0.8V, if I_{DSS} and V_p are given as 12.4 mA and -6V respectively	5 M
		(OR)	
8.	a)	Draw the drain characteristics of depletion type MOSFET. Explain clearly different operating regions in characteristics with proper reasoning.	6M
	b)	Distinguish between JFET and MOSFET	6 M

UNIT-V

9.	a)	Explain the working of Tunnel diode and its V-I characteristics. And what is the sufficient condition for tunnelling	6 M
	b)	Draw the equivalent circuit and V-I Characteristics of UJT and explain it	6 M
		(OR)	
10.	a)	Explain working of two transistor model of an SCR and Draw the SCR Characteristics	6 M
	b)	Write short notes on i) Photo diode ii) LED	6 M

AR16

CODE: 16CS1001 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech I / I B.Tech II Semester Supplementary Examinations, Oct / November-2021

COMPUTER PROGRAMMING

(Common to All 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)	Distinguish Variables and Constants in C with examples?	8M
	b)	Write program to find largest of three numbers without using if-else.	6M
		(OR)	
2.	a)	Write about relational operators in C?	7M
	b)	Write the structure of the C program with an example	7M

UNIT-II

3.	a)	Explain about multi way selection statements with suitable example.	6M
	b)	Explain break and continue statements?	8M
		(OR)	
4.	a)	Write a Program to print the Fibonacci series.	7M
	b)	Does switch(a*b+c*d) is valid or not? Please Justify your answer with an example?	7M

UNIT-III

5.	a)	Write parameter passing in C?	7M
	b)	Write a program for factorial with recursive functions?	7M
		(OR)	
6.	a)	Write a program for matrix multiplication?	8M
	b)	Explain User Defined Data type declaration and at what situations they can be used?	6M

UNIT-IV

7.	a)	Write a program to swap two numbers using pointers?	7M
	b)	Give the syntax for Union? Justify which among structure and Union Occupies more space?	7M
		(OR)	
8.	a)	Write pointer definition? Initiation and how to access pointers?	7M
	b)	Discuss array of structures?	7M

UNIT-V

9.	a)	List various operations that can be performed on files?	7M
	b)	Explain advantages of random access functions in C?	7M
		(OR)	
10.	a)	Write an algorithm to find number of lines in a file?	7M
	b)	Write about different types of files?	7M

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AR13

CODE: 13CS1001 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I B.Tech I / I B.Tech II Semester Supplementary Examinations, Oct / November-2021

COMPUTER PROGRAMMING
(Common to All Branches)

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

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) What are the differences between malloc() and calloc()?
   b) What is an argument? Differentiate between formal arguments and actual arguments?
   c) What will happen if in a C program you assign a value to an array element whose subscript exceeds the size of array?
   d) Write the difference between fscanf() and scanf().
   e) Evaluate the output for the following:

```
int main(){
int i=10;
printf("%d%d%d%d",i++,++i,i--,--i);
}
```

   f) Why C is a structured programming language. Explain.
   g) _____will be the output of the following program?

```
void main( )
{
int x []= {10,20,30,40,50};
printf ("\n %d %d %d %d %d ", x [4] ,3[x] ,x[2] ,1[x] ,x[0] );
}
```

   h) In case of a conflict between the names of a local and global variable what happens?
   i) Write the syntax for switch statement in C?
   j) Is there any difference between pre increment and post increment? Explain with examples?

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. a) Explain the different steps involved in creating and running programs with a neat flowchart. 6
   b) Describe the different types of constants in C with appropriate examples? 6

(OR)

3. a) What are identifiers, variables and constants? Mention the rules to construct identifier. Give some examples 6
   b) Explain Ternary operator and Write a C program to find the largest of three numbers using ternary operator. 6

UNIT-II

4.	a)	What is difference between else-if ladder and switch statement? Give an example.	6
	b)	Write a C program to find the reverse of a number using while loop.	6
		(OR)	
5.	a)	Write a C program to read two numbers and an arithmetic operator. Using switch case, perform the required arithmetic operations and display the results.	6
	b)	Explain for loop syntax with an example program.	6

UNIT-III

6.	a)	Define Array. Write a C program that can take 2 matrices as input, add them and print the result.	6
	b)	Explain the syntax of strlen and strcmp with example programs.	6
		(OR)	
7.		Write recursive functions to compute GCD of two numbers and factorial of a number.	12

UNIT-IV

8.	a)	List the differences between structure and union. Describe structure declaration, initialization and accessing elements.	6
	b)	What is a pointer? Discuss call by value and call by reference with suitable examples	6
		(OR)	
9.	a)	Compare and contrast array of pointers with pointer to pointer with suitable code snippets.	6
	b)	What is union? How to declare and initialize unions? Discuss.	6

UNIT-V

10.	a)	Define File? How do you declare a file? Explain different modes of operations on files with examples.	6
	b)	Write a C program to merge two files into single file.	6
		(OR)	
11.	a)	What is a text file, binary file? Explain formatted I/O in files.	6
	b)	How to read from and write to a file? Explain with examples.	6