				Q. Code:630333							
Reg. No.											

MAX. MARKS: 100

**RBT** 

LEVEL

## **B.E.** / **B.** TECH DEGREE EXAMINATIONS, MAY 2023

First Semester

## **IT22101- PROGRAMMING FOR PROBLEM SOLVING**

(Common to IT, AD, CS, EE, EC)

TIME: 3 HOURS

**COURSE** 

**OUTCOMES** 

CO<sub>1</sub>

(Regulation 2022)

**STATEMENT** 

Appraise the requirements, apply various problem solving techniques to solve

	problems and represent solution as algorithms			
C	Assess the given problem, design programmable solution and write C programs us	sing	4	
C	the constructs of C language. Examine the user requirements and apply the user defined structures available in	n C	4	
C	programming language to derive solutions.	пС	4	
C	Utilize the inbuilt functions in C and design functions to develop modulari	zed	3	
C	applications in C.		4	
C	Inspect the memory organization of a computer and design C programs for proble involving varying input sizes	ems	4	
	PART- A (20 x 2 = 40 Marks)			
	(Answer all Questions)	CO	DDT	
		CO	RBT LEVEL	
1.	Identify the network topology used on your computer practices laboratory and reason	1	3	
	the same.			
2.	Draw a flowchart to check if a number is a single digit number.	1	2	
3.	. What is the need for internet? List any two features that you observed in a website.			
4.	Convert the following: $(10111)_2 = (\underline{})_{10}$ ; $(888)_{10} = (\underline{})_8$	1	3	
5.	Compare gets() and scanf() to read a string from user.	2	4	
6.	Write a C program to check if a given English letter is a vowel.	2	3	
7.	Write a switch construct to print TRUE, FALSE, or NEUTRAL if the expression is 1, 0,	2	3	
	otherwise.			
8.	Applying break statement, write a C program of your choice.	2	3	
9.	How characters are interpreted in C language? Can you perform arithmetic operations	3	4	
	over characters?			
10.	Your name is "Engineer". Illustrate how your name is stored in memory as a string.	3	3	
11.	Write two different C language statements to initialize an array of five numbers.	3	2	
12.	List the different ways of reading characters with examples.	3	2	
13.	List the disadvantages of writing a C program only using main() function.	4	2	
14.	Differentiate user-defined and in-built functions with examples.	4	4	
	Page <b>1</b> of <b>4</b>			

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15.	How a recursive function differs from a non-recursive function?		4	2
16.	Label the return type, function name, parameters, and function body in the b	elow	4	3
	function.			
	void addition (int x, int y)			
	{			
	}			
17.	Write any valid statements completing the following blanks		4	2
	# define			
	# include			
18.	Define the macro for TRUE as 1 and FALSE as 0 and apply it in a C program of	your	5	3
	choice.			
19.	Differentiate static memory allocation and dynamic memory allocation with	h an	5	2
	example.			
20.	What will be the output of the following snippet assuming that the rest of the progr	am is	5	4
	correct?			
	int $x = 5$ ;			
	int * $px = &x$			
	int ** $px = &px$ ;			
	printf("%d,%d,%d",x,*px,**px);			
	PART- B (5 x $10 = 50$ Marks)			
	М	Iarks	CO	RBT
21. (a)	Discuss the components those make a computer. Provide necessary (	10)	1	LEVEL 2
( )	diagrams.	,		
<i>a</i> )	(OR)	10)	1	2
(b)	SVCE wishes to revise its networking structure across the campus. Explain the client about the possible ways to connect the computers in the campus	10)	1	2
	with suitable diagrams.			
•• ( )		( <b>-</b> )	_	•
22. (a)		(5) (5)	2 2	3
	(OR)	(3)	2	3
<b>(b)</b>		10)	2	3
	words. The maximum and minimum marks scored are 100 and 0			
	respectively.			
23. (a)	Write a C program to read the details of N students and display them as a	10)	3	3
	table. Each student has roll no, age, CGPA as their data.			
	(OR) Page <b>2</b> of <b>4</b>			
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<b>(b)</b>	Write a C program to count the number of students who scored less than 50,	(10)	3	3	
	between 51 and 75, between 76 and 90, and greater than 90 among N				
	students in one subject.				
24. (a)	Write a C program to perform addition, subtraction, multiplication and	(10)	4	3	
, ,	division using user-defined functions.				
	(OR)				
(b)	Write recursive functions to	(10)	4	3	
( )	(i) Calculate the factorial of a number	( )			
	(ii) Count the number of digits in a positive number.				
25. (a)	Apply various file functions to perform the following operations over files (i)	(10)	5	3	
()	create (ii) read (iii) append (iv) close	()			
	(OR)				
(b)	(i) Write a C program to swap two values using pointers.	(5)	5	3	
(6)		(5)	5	3	
	(ii) Calculate the square and cube of a number using macro functions	(3)	3	3	

## <u>PART- C (1 x 10 = 10 Marks)</u>

(Q.No.26 is compulsory)

In an institution the employees are paid as per their years of service and (10) 2 4 gender based on the below table. Design a solution as a C program to quote the salary of a new employee.

Years_of_service	Gender	Salary
>15 years	Male	70000
>15 years	Female	75000
More than 10 years up	Male	60000
to 15 years		
More than 10 years up	Female	65000
to 15 years		
<10 years	Both	50000

**26.** 

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Marks CO

RBT

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