Reg. No.

B.E./ B.TECH. DEGREE EXAMINATIONS, MAY 2024

First Semester

IT22101 - PROGRAMMING FOR PROBLEM SOLVING

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

(Regulation 2022)

TIME: 3 HOURS   **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO1	Identify input and output from the real word problem scenarios	3
CO2	Represent the design flow using Flow-charts and application logic using pseudo code.	3
CO3	Apply appropriate programming constructs to implement a given design using C.	3
CO4	Debug and customize an existing software developed in C.	5
CO5	Develop a modularised software application In C for the given user requirements	6

PART A (20x2=40Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	Compare and contrast application software and system software	1	2
2.	Summarize the advantages and disadvantages of star topology.	1	2
3.	Write the output for the following program.	3	3

```
#include<stdio.h>
int main(void)
{
int c;
c=printf("Hey,Welcome")+printf(" to world");
printf("\n%d characters were printed",c);
return 0;
}
```

A. A)20 characters were printed
B) Hey,Welcometo world
C)Hey,Welcome to world
20 characters were printed
D) Runtime Error : Cannot assign string values to integer type.

B.

		CO	RBT LEVEL
4.	Write a pseudo code for sum of N digits.(1+2+3+….+N)	2	3
5.	Draw a flowchart to find the factorial of a given number.	2	3
6.	<u>Write a C program to find maximum between two numbers using switch case.</u>	3	3
7.	Write a C program to enter month number between (1to12) and print number of days in month using if else.	3	3
8.	Compare and contrast branching and looping.	3	3

9.	Write a C program to copy the elements of one array to another array.	3	3
10.	List the ways of initializing the string array and the necessity of null character.	3	2
11.	Write a C program to find the length of a given string using library function.	4	3
12.	Comment on "Advantages of using functions".	4	2
13.	Compare formal and actual arguments with an example.	4	2
14.	Write a C program to read and print a value using pointer.	4	3
15.	Compare and contrast array and structures.	3	2
16.	Outline the advantages and disadvantages of union.	4	2
17.	Illustrate the syntax and use of ftell() function.	5	2
18.	Infer the difference between fscanf() and fread().	5	2
19.	Examine the necessity of storage classes in C.	5	2
20.	Define the macro to find the cube of a number.	5	3

PART B (5x 10=50Marks)

			Marks	CO	RBT LEVEL
21. (a)	(i)	Explain the basic organization of a computer.	(6)	1	2
	(ii)	Summarize the various input and output devices.	(4)	1	2

(OR)

(b)	Explain the various network topologies with their advantages and disadvantages.		(10)	1	2

22. (a)	Sketch the flowchart to find the sum of the following series. 1+2-3+4-5…..+N		(10)	2	3

(OR)

(b)	Write a Pseudo code to compute the sum of the following series $2^2+4^2+6^2+…….+N^2$		(10)	2	3

23. (a)	Write a C program to count and display the frequency of all elements		(10)	3	3

(OR)

(b)	Write a C program to find the difference between the primary and secondary diagonal of a matrix.		(10)	3	3

24. (a)	(i)	Write a C program to perform concatenation of two strings using library functions	(6)	3	3

(ii)	Write a C program to replace first occurrence of a character with another character in a string.	**(4)**	3	3

(OR)

(b)	**(i)**	Write a C program to convert string from lowercase to uppercase string using library functions.	**(6)**	3	3
	(ii)	<u>Write a C program to count total number of vowels and consonants in a string</u>.	**(4)**	3	3

25. (a)	**(i)**	Develop recursive function to generate n^{th} Fibonacci term in C	**(6)**	4	4
	(ii)	Develop C program to print the day of a week using enum	**(4)**	4	4

(OR)

(b)	**(i)**	Develop C program to find sum of array elements using recursion	**(6)**	4	4
	(ii)	Develop C program to add two numbers using pointers.	**(4)**	4	4

PART C (1x 10=10Marks)
(Q.No.26 is compulsory)

		Marks	CO	RBT LEVEL
26.	Construct a structure for N student with the following details <Reg_no,name,marks,result> .If marks is greater than or equal to 50 assign 'P' to result otherwise assign 'F' to result. Display the count of the students whose result is 'P'	**(10)**	5	5

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