FACULTY OF ENGINEERING

B.Tech. Sem - I Mid Semester Examination Winter-2024

Subject Name: Programming for Problem Solving-Theory

Subject Code: 2010206101

Total Marks: 40

Date: 24-10-2024
Time: 1:30 PM -3:00 PM

Instructions:
1. Attempt any FOUR questions out of FIVE questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1	Answer the following.	
(A)	Explain different symbols used in flowchart.	(2)
(B)	Write an algorithm or flowchart for finding the maximum out of three numbers entered by the user.	(3)
(C)	Explain different categories of operators available in C programming.	(5)
Q.2	Answer the following.	
(A)	Explain entry controlled and exit controlled loop with proper syntax for the following: 1) nested if-else statement 2) break statement.	(2)
(B)	Write a C program to read numbers 1 to 7 and print relatively day Sunday to Saturday using switch statements.	(3)
(C)	Write the outputs of the following code-snippet and explain your answer:	(5)

(C) Write the outputs of the following code-snippet and explain your answer:

```
(1) #include<stdio.h>
    int main(){
    signed short ix= -3;
    unsigned short u;
    u=ix;
    printf("%u%u",u,ix);
    printf("%d%d",u,ix);
    return 0;
    }
```

```
(2) #include<stdio.h>
    int main(){
    signed char a=100, b=200;
    signed char c=a+b;
    printf("%d%d%d",a,b,c);
    return 0;
    }
```

Q.3	Answer the following.	
(A)	List any three header files with its usage.	(2)
(B)	Explain four basic data types in C and provision to extend range for appropriate data types.	(3)
(C)	Explain storage class *auto*, *register*, *static* and *extern*.	(5)
Q.4	**Answer the following.**	
(A)	Differentiate function and macro.	(2)
(B)	Write a C program to find the factorial of a number using recursion.	(3)
(C)	Write a C program to print following patterns : * ** *** **** *****	(5)
Q.5	**Answer the following.**	
(A)	List out types of software with examples.	(2)
(B)	Write the outputs of the following expressions: i) 50 % 2 / 3 + 2 ii) 21 / (int) 2.5 + 3 iii) (1 > 2) || (2 < 3) && 5 < 1	(3)
(C)	Develop a program in C to check the entered number is prime or not by creating a user-defined function named check_prime().	(5)

1) 65533 , invalid
3 , -3

2).