

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Winter 2022 - 23 Examination

Semester: 1
Subject Code: 303105102
Subject Name: Programming for Problem Solving

Date: 27-01-2023
Time: 2.00 pm to 4.30 pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions - (Fill in the blanks, one word answer, MCQ-not more than Five in case of MCQ) (All are compulsory) (Each of one mark) (15)

1. _____ statement skips an iteration in Loops.
2. _____ is a keyword used in C language to assign alternative names to existing types
3. $(10101)_2$ in decimal is $(_____)_{10}$
4. $10 \gg 2$ is _____
5. _____ function is used to compare strings in C.
6. What is Recursion in C functions?
7. Write a difference between “w” and “a” mode in FILE opening.
8. Evaluate the following expression, where $a=5$, $b=10$.
 $x = a - b * ++b + 5$
9. Write a statement to find the maximum element between two variables using ternary operator.
10. Write the syntax to create an array variable.
11. In 2D arrays, _____ size need to be mention.
 - a. Row
 - b. Column
 - c. All
 - d. None of the above
12. What is the value of b in the following statement in C.
 $b = (4 + 5) - (4 = 5)$
 - a. 4
 - b. 5
 - c. 9
 - d. Invalid Expression
13. The _____ symbol is used to represent decision in flowchart.
 - a. Circle
 - b. Rectangle
 - c. Diamond
 - d. None of these
14. What is the maximum length of a C String.?
 - a) 32 characters
 - b) 64 characters
 - c) 256 characters
 - d) None of the above
15. What will be the size of the following structure?

```
struct temp{
    int arr[10];
    char ch;
};
```

 - a. 11
 - b. 21
 - c. 41
 - d. 44

- Q.2** Answer the following questions. (Attempt any three) **(15)**
- A) Explain the two-way selection (if, if-else, nested if-else) in C language with syntax and example.
 - B) Write a program in C to find the area and perimeter of a circle.
 - C) What is function parameter? Explain different types of functions calling in C with example program.
 - D) Convert (435)₈ to the base 16(hexadecimal)

- Q.3** **(07)**
- (A) What is an array? Explain types of arrays in C. Write a program to create an array with n elements and display all the array elements.

- (08)**
- (B) What is dynamic memory allocation? Write and explain the different dynamic memory allocation functions in C with syntax.

OR

- (08)**
- (B) What is number system and explain about binary arithmetic addition and subtraction with example.

- Q.4** (A) **(4+3)**

- i) What are looping statements? Give any 2 differences between while statement and a do-while statement in C. **(4)**

- ii) Write a program to print n even numbers. **(3)**
Input: 5
Output: 0 2 4 6 8

OR

- (A) **(07)**

What are primitive and non-primitive data types? Write a C program that computes the sizeof int, float, double and char

- (B) **(5+3)**

- i) What is a pointer? Write a program to swap strings using pointer. **(5)**
- ii) Differentiate between Structures & Union with syntax. **(3)**