



MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : ESCS201 Programming for Problem Solving
UPID : 002008

Time Allotted : 3 Hours

Full Marks : 70

The Figures in the margin indicate full marks.

Candidate are required to give their answers in their own words as far as practicable

Group-A (Very Short Answer Type Question)

1. Answer any ten of the following :

[1 x 10 = 10]

- (I) What is the use of continue in loop?
- (II) What is the string function used to reverse a string?
- (III) What is the time complexity of Bubble sort?
- (IV) What are preprocessor?
- (V) Recursion uses which data structure?
- (VI) What header file is used for string operation?
- (VII) What is nested if-else?
- (VIII) What is the use of goto statement?
- (IX) What is linear searching in an array?
- (X) What is Macro?
- (XI) What is the value of the following if a=2 ?
`printf("%d",--a);`
- (XII) What is goto statement in C?

Group-B (Short Answer Type Question)

Answer any three of the following :

[5 x 3 = 15]

2. What is structure ?
What is array of structures? Show with an example. [5]
3. Write a program to find roots of a quadratic equation. [5]
4. Draw flowchart to evaluate factorial of a numbers. [5]
5. What is conditional operator? [5]
6. What will be output of the code below? [5]

```
#include <stdio.h>
int main()
{
    int a[5] = {1, 2, 3, 4, 5};
    int i;
    for (i = 0; i < 5; i++)
        if ((char)a[i] == '5')
            printf("%d\n", a[i]);
        else
            printf("FAIL\n");
}
```

Group-C (Long Answer Type Question)

Answer any three of the following :

[15 x 3 = 45]

7. (a) What is the difference between Array and Structure? Show with example. [4]
 (b) What are the differences between Structure and Union? Show with example. [3]
 (c) Write a program using structure to take 10 students name, roll, marks and print the records with average marks. [8]
8. (a) Write a program to check a number is even or odd. [5]
 (b) Write a program to check a number is prime or not. [5]
 (c) Add all even numbers from an array. [5]

9. (a) What is an Operating system? [4]
(b) What are the functions of operation system? [4]
(c) What is booting? [3]
(d) What are the differences between compiler and Interpreter? [4]
10. (a) Write a program to print diagonal matrix from 5 x 5 matrix. [5]
(b) Write a program to concatenate two strings without using strcat() function in C. [5]
(c) Write a program to sort n elements from an array. [5]
11. (a) Convert Binary to Decimal of $(1101.01)_2$ [4]
(b) What is 2's Complement? Show by example. [4]
(c) Using 2's Complement do $10101_2 - 00111_2$ [4]
(d) Convert Decimal to Octal [3]
 $(5673)_{10}$

*** END OF PAPER ***