

total number of printed pages-7

3 (Sem-5/CBCS) STA HC 2

2023

STATISTICS

(Honours Core)

Paper : STA-HC-5026

**(Statistical Computing
using C/C++ Programming)**

Full Marks : 60

Time : Three hours

**The figures in the margin indicate
full marks for the questions.**

1. Answer the following questions : 1×7=7

- (a) Every programme statement in C must end with a dot. (State True or False)
- (b) What is printf function ?

(c) Which of the following is a data item displaced as a single character?

- (i) d
 - (ii) e
 - (iii) f
 - (iv) s
- (Choose the correct option)

(d) A C program contain the following statements:

```
# include <stdio.h>

int i, j, k;
```

Write an appropriate scanf statement to enter numerical values for i, j, k.

(e) What is C-tokens?

(f) What is the C-library function to find the exponentiation?

(g) Which of the following is an assignment operator?

- (i) %
 - (ii) !=
 - (iii) =
 - (iv) *
- (Choose the correct option)

2. Answer the following questions: 2×4=8

2.1 (a) Write the output of the following program segment in C:

```
{
    int x = 35
    float y = 4.5
    x = x * y
    y = x / y
    printf ( "%d: %f", x, y);
}
```

(b) Difference between machine level language and high level language.

(c) Write the following algebraic expression in C/C++

(i) $abc + bcd$

(ii) $\frac{x+y+3}{m+n}$

(d) Write about declaration of variables in C.

3. Answer **any three** questions from the following: 5×3=15

(a) Write briefly on WHILE statement available in C.

(b) What are the Data types in C/C++?

(c) Explain the relational and logical operators in C.

(d) What is the purpose of scanf function? How it is used within a C program? Compare with the getter function.

(e) What is the purpose of the for statement? How does it differ from the while statement?

4. Answer **any three** questions from the following: 10×3=30

(a) (i) Discuss initialization of one-dimensional array in C/C++. 5

(ii) Write a detail note on arithmetic operators in C. 5

(b) (i) Write a C/C++ program to find the regression equation of the lines of Y on X and X on Y. 7

(ii) Define switch statement. 3

(c) (i) What is subscripts? How are they written? In what way does an array differ from an ordinary variable? 5

(ii) Write an interactive C/C++ program that reads in a student's name and three exam scores, and then calculates an average score. The data will be entered interactively. Each input data will be entered on a separate line. Once the data entered, the computer will compute the desired average and write out all the data. 5

(d) (i) Write a C/C++ program to determine the correlation coefficient of the pairs (x_1, y_1) (x_2, y_2) ... (x_n, y_n) . 7

(ii) Write briefly on backslash character constants. 3

(e) (i) Write a C/C++ program to find the geometric mean of n observations. 6

(ii) Distinguish between the following pairs:

$2+2=4$

scanf and printf functions

%d and %f specifications

(f) (i) Write a C/C++ program to find the diagonal elements of a $n \times n$ matrix A. 7

(ii) Explain briefly the 'IF-ELSE' statement. 3
