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 appropiate 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

(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) $ab^c + bc^d$

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

(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 getcher function.

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

4.

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

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(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 seperate 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

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