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3 (Sem-5/CBCS) STA HC 2

2023

STATISTICS

(Honours Core)

Paper : STA-HC-5026

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

Full Marks : 60

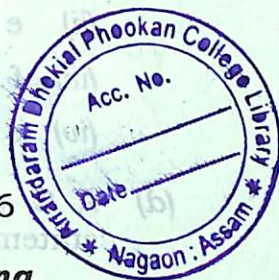
Time : Three hours

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

1. Answer the following questions : $1 \times 7 = 7$

(a) Every programme statement in C must end with a dot. (State True or False)

(b) What is printf function ?



Contd.

(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

(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) $abc + bc^d$

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

(d) Write about declaration of variables in C.

3. Answer **any three** questions from the following : $5 \times 3 = 15$

(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. Answer **any three** questions from the following : $10 \times 3 = 30$

(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.

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

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(ii) Write briefly on backslash character constants.

3

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

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(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.

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

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