

B.Sc. (Honours) Examination, 2019

Semester-IV

Statistics

Course : BSC-42

(Statistical Computing)

Time : 3 Hours

Full Marks : 40

Questions are of value as indicated in the margin

Answer **any four** questions

1. a) If k be decimal number and its binary equivalent be $(x_n x_{n-1} \dots x_1 x_0)_2$. Then write the expression of k in terms of $x_n, x_{n-1}, \dots, x_1, x_0$ when (i) k is a proper fraction (ii) k is a real number. 4
 - b) Suppose x_2 and x_{10} denotes the binary and decimal representation of a number x . Now if $a_{10} = 60$ and $b_2 = (110010)_2$, find $(a_{10}/b_{10})_2, (b_{10}/a_{10})_2, (a_2 + b_2)_{10}$. 6
 2. a) Write down the rules for constructing character constant in C. 2
 - b) Write down the flow chart to find the roots of a quadratic equation. 4
 - c) Temperature of a city in centigrade degrees is input through the keyboard. Write program to convert this temperature into Fahrenheit degrees. 4
 3. a) Write down the general form of 'for' loop. 3
 - b) Write a C-code to calculate the greatest integer of a number which is less than that number. 3
 - c) Write a program in C to calculate $\sum_{i=1}^{15} (-1)^i \cos^2(i)$. 4
 4. a) Using C programming language, calculate first four raw moments for an user input data of length 0.1. 5
 - b) Write C-program to print the first 50 terms of the series $x_{n+1}x_n(1-x_n)$, by taking the initial value 0-1. 5
 5. a) Write a C-program to compute the following integration by using trapezoidal rule
$$I = \int_0^5 \sqrt{1+x+x^5} dx.$$
 5
 - b) Write a code in C to compute the sum of two 5×5 matrix. 5
 - c) Write a C program to generate 50 samples from a $F(2,3)$ distribution. Compute the mean and s.d. of these samples. Save the output in a file. 10
 7. Write a program in C to calculate the speormman's rank correlation coefficient by taking the input of 20 values of x and y from user. 10
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