

B.Sc. (Honours) Examination, 2018
Semester-IV
Statistics
Course : BSC-42 (Old)
(Statistical Computing)

Time : 3 Hours

Full Marks : 40

Questions are of value as indicated in the margin

Answer **any four** questions

1. (a) Write short notes on : Objective and function of an operating system. 4
 (b) Suppose x_2 and x_{10} denotes the binary and decimal representation of a number x .
 Now if $a_2 = (0\ 1\ 0\ 1\ 1\ 0\ 1)_2$ and $b_{10} = 30$, find $(a_{10} | b_{10})_2$, $(a_2 + b_{10})_{10}$, $(a_{10} | 100)_2$,
 $(2.5 \times b_{10})_2$. 6
 2. (a) Write down the rules for constructing real constants in C. 3
 (b) Write short notes on : print(), compilation and execution in C programming. 4
 (c) Write purchasing certain items, a discount of 10% is offered if the quantity purchased is more than 1000. If quantity and price per item are input through the keyboard, write down the flowchart to calculate the total expenses. 3
 3. (a) Write down the general form of while loop. 2
 (b) Write a C-code to calculate the greatest integer of a number which is left than that number. 3
 (c) Use for loop to print the following figure in C
- | | | |
|---|---|---|
| 2 | 3 | 4 |
| 3 | 4 | 6 |
| 4 | 5 | 6 |
- (d) Write a C-program to calculate $\sum_{i=1}^{10} (-1)^i \sin^2(i)$ 3
 4. (a) Write a program in C to calculate and print the first quartile, second quartile, third quartile and interquartile range of 30 numbers input through keyboard. 5
 (b) Write a C-code to print the first 50 terms of the following ?????? by taking the initial value (0.1, 0.15)

$$x_n = x_{n-1}(1 - x_{n-1}) - x_{n-1}y_{n-1}$$

$$y_n = x_{n-1}y_{n-1} - y_{n-1} + 0.2x_n$$

Hence find the correlation co-efficient between x and y data.
 5. (a) Write a C program to fil a binomial distribution with the following data. Save the output of the program in a file. 5

| | | | | | | | | | |
|--------------|----|----|----|-----|-----|-----|----|----|---|
| Number(x) | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Frequency(f) | 12 | 46 | 80 | 124 | 197 | 133 | 65 | 21 | 3 |

- (b) Write a code on C to find a root of the equation by iteration method
6. (a) Write a program in C to check whether a square matrix of order n is skew-symmetric or, not. 7
- (b) Write a program to calculate the trace of square matrix of order n . 3
7. Write a C program to generate 5000 samples from $t_{(3)}$ distribution. Compute mean and s.d. these samples. 10
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