AA—38—2019

FACULTY OF SCIENCE

B.Sc. (CS) (First Year) (First Semester) EXAMINATION

OCTOBER/NOVEMBER, 2019

(CBCS Pattern)

COMPUTER SCIENCE

(S1.4)

(Statistical Techniques in Computer Science)

(Friday, 18-10-2019)   **Time : 10.00 a.m. to 1.00 p.m.**

Time—3 *Hours*   *Maximum Marks*—75

N.B. :— (i)   *All* questions are compulsory.

   (ii)   Figures to the right indicate full marks.

   (iii)   Assume suitable data, if required.

   (iv)   Use of non-programmable calculator is allowed.

1.   Attempt any *five* of the following :   15

   (a)   Write the limitations of Statistics.

   (b)   Explain Collection of data.

   (c)   Write merits and demerits of Arithmetic Mean.

   (d)   Describe concept of dispersion.

   (e)   Give classical definition of probability and write its axioms.

   (f)   If A is any event, then prove that :

$$0 \leq P(A) \leq 1.$$

   (g)   Explain correlation in brief.

P.T.O.

2. Attempt any *two* of the following : 10

 (*a*) Explain importance of Statistics.

 (*b*) Write scope of Statistics in Industry.

 (*c*) Describe Statistics in detail.

3. Attempt any *two* of the following :

 (*a*) Explain Frequency, Cumulative Frequency and Relative frequency.

 (*b*) Describe frequency polygon.

 (*c*) Write note on Pie diagrams.

4. Attempt any *two* of the following : 10

 (*a*) Explain weighted arithmetic mean.

 (*b*) Calculate arithmetic mean from the following data :

Class	Frequency
0 – 25	8
25 – 50	12
50 – 75	16
75 – 100	23
100 – 125	18
125 – 150	14
150 – 175	9
175 – 200	4

(*c*) Calculate mode of the following data :

Marks	Frequency
0 – 5	3
5 – 10	8
10 – 15	12
15 – 20	17
20 – 25	25
25 – 30	14
30 – 35	10
35 – 40	7

5. Attempt any *two* of the following : 10

(*a*) Explain Coefficient of Variation.

(*b*) Calculate Standard Deviation of the following data :

Wages	Frequency
100 – 150	12
150 – 200	18
200 – 250	21
250 – 300	25
300 – 350	17
350 – 400	13
400 – 450	10

P.T.O.

(c) Calculate Variance of the following data :

X	f
12	5
17	8
23	12
29	15
32	11
45	6
48	4
50	2

6. Attempt any *two* of the following : 10

(a) Explain Permutation.

(b) If A and B are any *two* not mutually exclusive events, then prove that :

P(A ∪ B) = P(A) + P(B) − P(A ∩ B).

(c) A bag contains 8 black pens and 2 red pens and if a pen is drawn at random. What is the probability that it is black pen or red pen.

7. Attempt any *two* of the following : 10

(a) Explain Regression.

(b) Calculate Karl Pearson's coefficient of correlation between X and Y :

X	Y
8	4
10	7
13	9
7	12
6	5
4	3

(*c*) Obtain the two regression equations from the following :

X	Y
7	8
11	4
5	12
12	9
16	15
14	20
10	2

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