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BCS-040

BACHELOR OF COMPUTER APPLICATIONS

(BCA) (Revised)

Term-End Examination, 2019

BCS-040 : STATISTICAL TECHNIQUES

Time : 2 Hours **Maximum Marks : 50**

Note : Attempt both sections, i.e. Section A and Section B. Attempt **any four** questions from Section **A**. Attempt **any three** questions from Section **B.** Non-scientific calculator is allowed.

SECTION-A

1. The marks obtained by 25 BCA students in statistical techniques paper out of 50 are given below :

48	10	18	02	27
23	17	23	34	35
35	37	42	37	22
42	24	26	40	08
25	13	20	23	35

(a) Present the above data in the form of continuous frequency distribution by taking the first class interval as (0-10). [2]

(b) Prepare histogram of the obtained distribution. [3]

2. The following table gives daily wages (in rupees) of workers in a certain commercial organization :

Daily Wages	200-300	300-400	400-500	500-600	600-700
No. of Workers	10	12	20	5	3

Calculate median wages of the workers. [5]

3. A problem of statistics is given to three students A, B and C whose chances of solving it are 0.3, 0.5 and 0.6 respectively. What is the probability that the problem will be solved ? [5]

4. The probability distribution of a discrete random variable X is as follows : [2+3]

X	0	1	2	3	4	5
p(x)	0	C	C	2C	3C	C

Find :

(a) The constant C

(b) $P[X \leq 3]$

5. A filling machine is set to pour 952 ml (milliliter) of oil into bottles. The filled amount is normally distributed with mean of 952 ml and standard deviation of 4 ml. Find the probability that a bottle contains oil between 952 and 956 ml. (Given $P[0 \leq z \leq 1] = 0.3413$) [5]

SECTION-B

6. Explain **any two** of the folowing : [5+5]

   (a) Criteria for a good estimator

   (b) Stratified random sampling

   (c) Systematic random sampling

7. Three salesmen were posted in different areas of a company. The number of units sold by them are given below :

A	B	C
10	12	5
7	8	10
9	5	6
10	7	5

On the basis of the above information, can it be concluded that there is a significant difference in the performance of the salesmen at 5% level of significance ? (Given $F_{(2,9),}$ 5% = 4.26). [10]

8. 1000 students at college level were graded according to their IQ level and economic condition of their parents. The abtained data are as follows : [10]

Economic Condition	IQ Level	
	High	Low
Poor	240	160
Rich	460	140

Test that IQ level of the students is independent to the economic condition of their parents at 1% level of significance.

(Given $\chi^2_{(4),1\%} = 13.28$, $\chi^2_{(1),1\%} = 6.63$)

9. The Pulse rate of 6 people were recorded before and after taking a new drug. The obtained puise rates are given below : [10]

Before	68	71	84	93	67	74
After	71	70	81	97	73	80

Can you say there is a significant increase in the pulse rate at 5% level of significance after consuming the new drug ? (Given $t_{(5),\,5\%} = 2.015$, $t_{(6),\,5\%} = 1.943$)

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