

Seat	
No.	

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B.C.A. (Part-II) (Semester-III)

Examination March/April, held in May 2023

## ELEMENTS OF STATISTICS

Subject Code: 83377

Day and Date: Friday, 09/06/2023

Total Marks:70

Time: 02.30 p.m. to 05.30 p.m.

### Instructions:

1. Use of a simple calculator is allowed.
2. Graph papers will be supplied on request.
3. Que. 1 and Que. 6 are compulsory and attempt any three Questions from Que. No. 2 to Que. No. 5.

Q.1. A] Choose the correct alternative: [10 Marks] [20]

1. When a researcher collects data by conducting interviews, observations, or experiments, it is known as:

- |                  |                   |
|------------------|-------------------|
| a) Primary data  | b)Secondary data  |
| c) Tertiary data | d)Quaternary data |

2. .... divides the data into two equal parts.

- |         |        |          |                      |
|---------|--------|----------|----------------------|
| a) Mean | b)Mode | c)Median | d)Standard deviation |
|---------|--------|----------|----------------------|

3. The measures of central tendency can be

- |             |            |        |                 |
|-------------|------------|--------|-----------------|
| a) Positive | b)negative | c)zero | d)All the above |
|-------------|------------|--------|-----------------|

4. Two samples A and B have the same standard deviation but the mean of A is greater than the mean of B. The coefficient of variation of A is

- |                 |                               |
|-----------------|-------------------------------|
| a) Less than B  | b)Greater than B              |
| b) c)Equal to B | d)Unable to find the relation |

5. A perfect negative correlation is signified by

- |      |      |            |      |
|------|------|------------|------|
| a) 0 | b)+1 | c)-1 to +1 | d)-1 |
|------|------|------------|------|

6. In the regression equation  $Y = 80 + 0.4 X$ , the slope is

- |       |        |       |                 |
|-------|--------|-------|-----------------|
| a) 80 | b)80.4 | c)0.4 | d)none of these |
|-------|--------|-------|-----------------|

7. The signs of regression coefficients of y on x ( $b_{yx}$ ) and x on y ( $b_{xy}$ ) always

- |             |            |        |            |
|-------------|------------|--------|------------|
| a) Positive | b)negative | c)same | d)opposite |
|-------------|------------|--------|------------|

8. In time series analysis changes are unpredictable for the

- |                     |                      |
|---------------------|----------------------|
| a) Secular trend    | b)Seasonal Variation |
| c) Random variation | d)Cyclic variation   |

9. Prosperity, Recession, and depression in business is an example of

- |                        |                      |
|------------------------|----------------------|
| a) Cyclic variation    | b)Secular trend      |
| c) Irregular variation | d)Seasonal variation |







10. SRSWOR stands for

- a) Simple Random Sample with Replacement
- b) Simple Random Sample without Replacement
- c) Stratified sampling
- d) none of these

B] Attempt any Two: [10 Marks]

- a) Distinguish between Primary and Secondary data.
- b) For time series data, if  $y = 110.83 + 11.07x$ ; where  $x = 2t - 4001$ , is the equation of best-fitted trend then estimate the value of  $y$  for  $t = 2020$ .
- c) If  $N = 10, \sum X = 200, \sum X^2 = 4650$ , find the value of Standard deviation.

Q.2. Following data represents the number of students admitted for BCA courses in a certain college [10]

Classes:	BCA-I	BCA-II	BCA-III
Students	70	65	45

Draw a Bar and Pie-diagram for the above data.

Q.3. Define Mean, Median, and Mode. Calculate the same for the following data. [10]

X:	1	2	3	4	5	6	7	8	9
Freq:	8	10	11	16	20	25	15	9	6

Q.4. Define Spearman's rank and Karl Pearson's correlation coefficient. Calculate Spearman's rank correlation coefficient (R) between the two kinds of assessment of graduate student's performance in a college and interpret it. [10]

Student ID	A	B	C	D	E	F	G	H	I
Internal Marks (X)	51	68	73	46	50	65	47	38	60
External Marks (Y)	49	72	74	44	58	66	50	30	35

Q.5. Explain Secular Trends in time series. Find 3 yearly moving averages for the following data. Also, plot the trend value along with the original on graph paper. [10]

Year	2011	2012	2013	2014	2015	2016	2017	2018
Values	10	12	11	14	9	10	13	11

Q.6. Write notes on any four. [20]

- a) Types of correlation.
- b) Requirements of good average.
- c) Discrete and Continuous variables.
- d) Simple Random Sampling.
- e) Seasonal variation in time series.
- f) Coefficient of variation (C.V).

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