

SEAT No.

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F.Y.B.B.A
(205) BUSINESS STATISTICS
(2019 Pattern) (Semester - II)

[Time: 2½ Hours]

[Max. Marks: 70]

Instructions to the candidates:

- 1) All questions are compulsory.
- 2) Figures to the right indicate full marks.
- 3) Notations and abbreviations have their usual meaning.
- 4) Simple calculator is allowed.

Q1) A) Fill in the blanks:

[5 × 2 = 10]

- a) C.V is used for comparison of_____.
- b) Less than type cumulative frequencies are_____in nature.
- c) If mean =10, sum of observation is 40 then the total number of observations are_____.
- d) If $\text{Corr}(X, Y) = 0.8$, then $\text{Corr}(3X, 2Y) =$ _____.
- e) The index number base year is assumed to be_____.

B) State whether the following statements are True or False: [3 × 2 = 6]

- a) Both regression coefficients cannot exceed unity simultaneously.
- b) Mean can be determined graphically.
- c) If C.V is less, it will be more consistent.

Q2) Attempt any four of the following:

[4 × 4 = 16]

- a) Define mean. State its two merits and two demerits.
- b) Compute regression coefficients & hence verify that correlation coefficient lies between them.
 $n=200, \bar{X}=50, \bar{Y}=60, \sigma_x=20, \sigma_y=30, \sum(X-\bar{X})(Y-\bar{Y})=9400$.
- c) Represent the following information with suitable diagram.

Mode of transport	No. of Passengers.
Bus	350
Train	400
Airplane	150
Private vehicle	600
Own vehicle	500
Total	2000

- d) Compute the quartiles for the following series of observation.
 30,30,35,5,6,7,9,20,40,45,11,18,15,49,50.
- e) Following is the data related to the frequency distribution of students according to marks scored in a certain examination:

Marks	0-19	20-39	40-59	60-79	80-99
No. of students	9	16	32	12	8

Find:

- State the type of classification.
 - Class mark of second class.
 - Class of width of fourth class.
 - How many students getting the marks less than 79?
- f) From the following data, compute an index for the year 2012 taking 2011 as base by simple average of Price Relatives method using arithmetic mean.

Commodity	2011 Price (Rs.)	2012 Price (Rs.)
A	5	1
B	4	2
C	3	3
D	2	4

Q3) Attempt any four of the following: [4 × 4 = 16]

- Define variable. Explain discrete variable and continuous variable with example.
- Discuss the various problems involved in the construction of index numbers.
- Calculate mode for the following frequency distribution:

Marks	0-10	10-20	20-30	30-40	40-50
No. of students	2	5	15	8	3

- Find combined standard deviation :
Group I: $\bar{X} = 200$, $n_1 = 10$, $\sigma_1 = 5$
Group II: $\bar{X} = 150$, $n_2 = 20$, $\sigma_2 = 6$
- The two regression equations are $5x - 4y + 20 = 0$ and $10x - 8y - 95 = 0$. Find regression coefficients of X on Y and Y on X.
- Find the mean, median and mode for the following data:
61, 62, 63, 62, 63, 62, 64, 64, 60, 65.

Q4) Attempt any four of the following: [4 × 4 = 16]

- Following are the values of import & export of raw material in suitable units. Calculate the coefficient of correlation between import & export.

Export	10	11	14	14	20	22	16	12	15	13
Import	12	14	15	16	21	26	21	15	16	14

- What do you mean by Central tendency? State the requirements of good measure of Central tendency.

c) Draw frequency polygon for the following data:

Monthly house rent	10-30	30-50	50-70	70-90	90-110	110-130
No. of Families	5	15	25	20	10	6

- d) A family budget survey of middle class families have the following data:

Items	Price in year		Expenditure
	2018 in Rs.	2019 in Rs.	
Food	10000	11000	35%
Fuel & Lighting	1500	1750	10%
Clothing	3000	4000	20%
House rent	5000	5000	20%
Miscellaneous	3000	5000	15%

- e) Define scatter diagram and explain how it is used to measure correlation.
 f) Compute standard deviation for the following data: 15, 18, 22, 25, 10.

Q5) Attempt any one of the following:

[1 × 6 = 6]

- a) Obtain regression line for the following data:

X	2	3	5	7	8	10	12	15
Y	2	5	8	10	12	14	15	16

Find estimate of i) Y when X=6 & ii) X when Y=20

- b) Compute Fisher's price index number for the following distribution:

Commodity	Year 2011		Year 2012	
	Price	Quantity	Price	Quantity
A	5	4	11	2
B	5	3	5	3
C	3	2	2	4

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