



NOTE: i) All questions are compulsory.

ii) In Q.1, both A and B are compulsory .

iii) Figures to the right indicate marks.

iv) Use of non-programmable calculator is allowed.

v) Graph will be provided on request.

Q. 1.A. Select an appropriate alternative for the following: (Any 8)

[8]

1. The data which is collected by first hand source is known as \_\_\_\_\_.  
(Information, secondary data, Primary data)
2. The graphical representation of data joining the points by using a smooth curve is called as \_\_\_\_\_.  
(Histogram, frequency polygon, frequency curve)
3. The difference between upper and lower limit is known as \_\_\_\_\_.  
(median, decile, class width, class mark)
4. If the value of coefficient of variation is more then the consistency of data is \_\_\_\_\_.  
(more, less, equal)
5. If coefficient of correlation between x and y is less than 0 then there is \_\_\_\_\_ correlation.  
(positive, negative, none)
6. If  $y = c$  where c is constant then the rate of change in y with respect to change in x is \_\_\_\_\_.  
(0, 1, c,  $C^2$ )
7. The demand function is  $p = 40 + 3D - 5D^2$ . The average revenue is \_\_\_\_\_.  
( $40/D + 3 - 5D$ ,  $40 + 3D - 5D^2$ ,  $3-10D$ ,  $40D+3D^2-5D^3$ )
8. The difference between compound and simple interest on Rs.3000 at 10% p.a. for two years is Rs. \_\_\_\_\_.  
(3, 300, 30, none of these)
9.  $F(x) = 100$  is \_\_\_\_\_ function.  
(linear, not a function, constant)
10. The demand is called inelastic if the elasticity of demand is \_\_\_\_\_.  
(zero, one, between 0 & 1, greater than 1)

B. State whether the following is true or false: (Any 7)

[7]

1. The difference of upper and lower quartiles is range.
2. Journal is an example of primary data.
3. Standard deviation is rigidly defined.
4. Correlation coefficient always greater than 1.
5. Statistical gives an accurate result.
6. The total revenue function minus the total cost function is sales.
7. The rate of change of y with respect to x is called as derivative.
8. For a data  $r = 0.3$ ,  $b_{yx} = 0.24$  and  $b_{xy} = -0.375$ .

9. Compound interest is always less than simple interest.

10. An annuity in which the payments are made as long as person alive is called as annuity certain.

Q 2) A.

i. Calculate median and mode for the following data :

[8]

Class	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	6	8	4	1	9	2

ii. Draw the less than ogive curve and also locate median for the following marks distribution :

[7]

Marks	0-20	20-40	40-60	60-80	80-100	100-120
No. of students	4	8	9	10	6	1

[OR]

Q 2) B.

i. Draw the frequency curve and histogram for the following data :

[8]

Units	0-10	10-20	20-30	30-40	40-50	50-60
No. of consumers	8	2	6	4	3	5

ii. Find the missing frequency if the mean is 21.9. And also find median.

[7]

Class	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40
Frequency	2	5	---	13	21	16	8	3

Q 3) A.

i. Calculate the quartile deviation and coefficient of Q.D. for the following data:

[8]

Age	20-25	25-30	30-35	35-40	40-45	45-50	50-55
No. of employees	2	5	9	5	4	4	3

ii. Calculate spearman's coefficient of correlation for the following distribution:

[7]

X	20	15	11	8	10	12
Y	10	40	20	25	35	22

[OR]

Q 3) B.

i. Find regression equation of y on x for the following data and hence estimate y when x = 12

[8]

X	1	2	3	4	5	6
Y	3	5	7	9	11	12

ii. Calculate Karl Pearson's coefficient of correlation for the following data :

[7]

X	39	65	62	90	82	75
Y	47	53	58	86	62	68

Q 4) A.

i. A loan of Rs. 10 lakhs is repaid in 3 equal yearly instalments, at the end of each year, the rate being compounded at 18% p.a. What will be the sum of each instalment? Write down the amortisation table. [8]

ii. A company manufactures a product for which the demand function is  $p=2000-4x$ . The company's fixed cost is Rs. 60,000 and variable cost is Rs. 600 per product. Find the minimum amount of products required to be produced and sold in order to avoid a loss. [7]

[OR]

Q 4) B.

i. The simple and compound interest on a sum of money at a certain rate for 2 years is Rs. 3000 and Rs. 3090 respectively. Find sum and rate. [7]

ii. If the demand function is given by  $p=100-3D-D^2$ , find the price elasticity of demand when  $D=2$ . [8]

Q. 5. Write short notes : (Any 3)

[15]

1. Distinguish between simple and compound interest
2. Methods of collecting primary data
3. Correlation
4. Break-even point with example
5. Interquartile range

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