

I1Q1019

Time: $2\frac{1}{2}$ Hrs.

Marks: 75

- Note: 1. All questions are compulsory.
2. Figures to the right indicate full mark.
3. Graph papers will be provided on request.

Q.1 A Fill in the blanks with the correct alternative (any eight) : [08]

- The variance of a data is 4, then its standard deviation is _____.
(a) 2 (b) 4 (c) 5 (d) 10
- EMV Stands for Expected _____ value.
(a) Marketing (b) Monetary (c) Machine (d) None of the above
- Quartiles divides the data into _____ equal parts
(a) 2 (b) 4 (c) 10 (d) 3
- We use regret table for calculating _____.
(a) EOL (b) EMV (c) Maximax (d) Minimin
- Range is determined only by _____ points in a data set
(a) Two (b) Three (c) One (d) Five
- Class width of the interval 10-20 is _____.
(a) 10 (b) 15 (c) 20 (d) 25
- The difference between the upper limit and lower limit of a class is called _____ of class.
(a) Class mark (b) Class width (c) None of the above (d) Class interval
- The correlation coefficient is unaffected by change of _____.
(a) Origin (b) Scale (c) Origin and scale (d) Scale and Origin
- The data collected for the first time is _____.
(a) Values (b) Information (c) Secondary data (d) Primary data
- Cost of living Index numbers is known as _____ Index number.
(a) Value (b) Consumers price (c) Wholesale (d) Wholesale Price

Q.1 B. State whether the following statements are true or false (any seven): [07]

- Range is difficult to calculate.
- Quartiles cannot be located graphically
- Variance is always positive.
- In a series of Index numbers, base year can be changed.
- Co-efficient of correlation lies between -1 and +1.
- Index number for the base year is always zero.
- Mean deviation can be obtained from arithmetic mean.
- Insurance premiums can be paid monthly.
- The frequency of a value in any distribution is non-negative.
- Mode is the most frequently occurring value in a data set.

Q.2 A. The following data give the consumption of electricity. Represent it by a histogram and hence obtain mode graphically. [08]

No.of units	0-100	100-200	200-300	300-400	400-500	500-600
No.of consumers	9	18	35	32	28	10

- Q.2 B.** Draw a multiple bar diagram to represent the data relating to exports of cars by U.S.A. and Japan to France, for the year 2011-2013. The Exports are expressed in million Francs [07]

Exports		
Year	U.S.A	Japan
2011	23	18
2012	25	21
2013	26	28

OR

- Q.2 C.** Calculate Quartile deviation for the following distribution of ages of 800 persons. Also find coefficient of quartile deviation. [08]

Age in years	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60
No. of Persons	50	70	100	180	150	120	70	60

- D.** Find standard deviation for the following data. [07]
21,16,13,11,9,14,8,14

- Q.3 A.** The following data gives the ranks assigned to eight workers by two different supervisors. Find Rank correlation coefficient. [08]

Rank by supervisor I	3	5	7	1	2	8	6	4
Rank by supervisor II	2	1	4	5	7	6	3	8

- Q.3 B.** From the following data, Find the two regression equations. [07]
 $\sum (x-\bar{x})(y-\bar{y}) = 240, n = 5, \sum (x-\bar{x})^2 = 180,$
 $\sum (y-\bar{y})^2 = 350, \sum x = 200, \sum y = 220.$

OR

- Q.3 C.** For the following discrete Frequency distribution, prepare cumulative Frequency distribution of less than type and greater than type. [08]

x	1	2	3	4	5	6
y	5	7	15	11	6	4

- Q.3 D.** Find the arithmetic mean for the following data, representing marks of 80 students. [07]

Marks	0-10	10-20	20-30	30-40	40-50
No. of students	12	13	21	19	15

- Q.4 A.** Find Laspeysre's, Paasche's and Fisher's index Number from the following data. [08]

Commodity	Base Year		Current Year	
	Price	Quantity	Price	Quantity
		y		y

A	4	10	5	12
B	3	8	6	10
C	2	8	3	9
D	5	4	8	5

Q.4 B. Ajay Patel has a savings policy for 25 years term for Rs.15, 00,000 as the sum assured. He paid 15 annual policy was Premiums, out of the sum total of 25 annual premiums. Then the policy was converted to a paid-up policy as he was unable to pay the Remaining premiums. A bonus of Rs.1,50,000 was announced during this period. Find the paid-up value of the policy. [07]

OR

Q.4 C. For the pay-off matrix given below find best course of action using: [08]

(i)EMV Criterion

(ii)EOL Criterion

State of nature	Pay off Matrix (Profit in Rs.)			Probability
	Acts			
	A ₁	A ₂	A ₃	
S ₁	50	-20	-250	0.1
S ₂	800	880	800	0.7
S ₃	1300	1480	1500	0.2

Q.4 D. If X is a random variable having the probability function. [07]

$$P(X=x) = \frac{x}{8} \quad x=0,1$$

$$= \frac{k}{4} \quad x=2$$

$$= \frac{kx}{16} \quad x=3$$

Find k, E(X).

Q.5 A. What is Quartile Deviation? State its merits and demerits. [08]

B. Write down the limitations of Index number. [07]

OR

Q.5 C. Write Short Note [Any 3] [15]

- a. Merits and demerits of Median
- b. Different types of Ogives.
- c. Paid-up value
- d. Define : (i)Probability of an event
(ii)Mutually Exclusive events
- e. Functions of Statistics.
