Paper / Subject Code: 81309 / Quantitative Methods-I

[Time: 2:30 Hours]

[Marks:75] Please check whether you have got the right question paper. 1. All questions carry equal marks. N.B: 2. Figures to the right indicate marks. 3. Graphs to be provided on required. Q.1 A) Multiple Choice Questions. (any 8) $(\mathbf{08})$ 1. The difference between the upper limit and lower limit of class is called ______ of class. a) Class mark b) Class width c) Frequency Class mark b) class with
 To calculate Rank correlation coefficient we find ______ between the ranks. a) Difference b) Sum c) Product 3. _____ is a measure of Centeral Tendency. b) Standard deviation a) Median - c) Correlation 4. In Paasche's Index Number ______ year quantity is used. a) Base b) Current c) Future 5. Range is determined only by _____ point in a data set. b) One a) Two c) Three 6. The total area under normal curve is ______. a) 200 c) 10 b) 1 7. If an Insurance premium is not paid within the ______ period, the policy lapses. a) Grace b) Maturity c) Bonus 8. In ______ criteria the decision maker calculates the average out come for every alternative. b) Maximin c) Minimin a) Laplace 9. If A and B are independent event then conditional probability (A/B) = _____. a) P(A) - P(B)b) P(A) c) P(B) 10. For less than curve cumulative frequency are plotted against the _____ limit of class Interval. c) Midpoint b) Lower a) Upper Q.1 B) Match the following. (any 7) (07)Column A Column B 1. Laspeyre's Index Number a) Lies between -1 & + 12. Range b) 1000 3. Co-efficient of Correlation c) $x_n - x_1$ 4. Tabulated Rate of Annual Premium d) 1 - P(A)e) $r \frac{\sigma y}{\sigma y}$ 5. $P(\overline{A})$ 6∑d² 6. b_{vx} 1 f) $N(N^2-1)$

7. Rank correlation

8. Quartile Deviation

9. Arithmetic Mean

10. Mini max

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 $Q_3 - Q_1$

∑poqo

∑fx

Regret Table

 $\frac{\overline{\Sigma \text{ poq 1}}}{1} \times 100$

g)

h)

i)

j)

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Q.2 A) Calculate Quartile Deviation and Co-efficient of Quartile Deviation for the following.

| | | | | × X × | |
|----------------|-------|-------|-------|-------|-------|
| Class Interval | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
| Frequency | 9 | 5 | 11 | 12 | 3 5 5 |

Q.2 B) Calculate Mean Deviation from Mean from the following.

| Wt in kg | 50 | 55 | 60 8 | 65 | 70 |
|-----------|----|----|------|----|----|
| No of men | 20 | 15 | 25 | 10 | 30 |

OR

Q.2 C) Calculate co-efficient of correlation between Demand and Price.

| Demand Index | 100 | 102 | 104 | 106 |
|--------------|-----|-----|-----|-----|
| Price Index | 98 | 115 | 108 | 115 |

Q.2 D) Calculate Regression equation of variables X on Y and Y on X.

 $\sum (x - \bar{x}) (y - \bar{y}) = 350$; n = 5

$$\sum (x - \bar{x})^2 = 280$$
; $\sum (y - \bar{y})^2 = 240$

$$\sum x = 200$$
; $\sum y = 11$

Q.3 A) Calculate Mean and variance of "X" from the following probability.

| X SSJ | Õ 🔊 | PERS | 2 | 30,000 | 4 |
|-------------|-----------|------|---------|--------|------|
| Probability | 0.20 | 0.25 | 0.30 | 0.15 | 0.10 |
| | YAVI Y UI | | A A CAY | | |

Q.3 B) A card is drawn at Random from a well shuffled full pack of cards. Events A and B are defined as follows. (07)

A: is the event that the card is a heart

B: is the event that the card is a Queen

Find $P(A \cup B)$ and what is the event of $P(A \cap B)$?

OR

Q.3 C) Calculate D_2 and P_{80} for the following.

| Class interval | Frequency |
|----------------|-----------|
| 100 - 150 | 4 |
| -150 - 200 | 7 |
| 200-250 | 20 |
| 250-300 | 9 |
| 300-350 | 6 |
| 350-400 | 4 |
| | |

Q.3 D) Calculate Index Number using Weighted Average of Relative method.

| Commodities | Pric | Quantity | | |
|--|------|----------|------|--|
| 12 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | 2017 | 2018 | 2017 | |
| | 2 | 4 | 2 | |
| B | 3 | 5 | 5 | |
| C C | 10 | 15 | 10 | |

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(08)

(07)

 $(\mathbf{08})$

(07)

(08)

(08)

(07)

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Q.4 A) Find Class Width, Class mark, less than cumulative frequency greater than cumulative frequency, and Percentage frequency from the following.

| <u>nage nequency nom me n</u> | |
|-------------------------------|---------------|
| Class interval | Frequency |
| 100 - 105 | 15 |
| 105 - 110 | |
| 110 - 115 | A P P P P P P |
| 115 - 120 | N N 6 7 6 6 8 |

Q.4 B) Draw a Histogram & find Mode graphically.

| Marks | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 |
|----------------|-------|-------|---------|---------|-------|
| No of students | 10 | 15 | 20 | ñ12 S s | 8232 |
| | | | A 2 6 2 | あると | |

(07)

(08)

OR

Q.4 C) Mr. X wishes to take a Life Insurance Policy of Rs. 3,00,000 with the tabulated rate of Annual (08) Premium at Rs. 55.30 per thousand. The company allows a 4% reduction on the tabulated Amount for yearly payment and Rs. 2 reduction per Rs. 1000 of the Assured sum. Calculate Annual Premium and Net Monthly Premium.

| Q.4 D) Calculat | Height In cm | $\frac{1}{110}$ | $\frac{111}{111}$ | $\frac{112}{112}$ | $\frac{113}{113}$ | 114 | 115 | 116 | (07) |
|---|-----------------------|-----------------|-------------------|-------------------|-------------------|--------------|-----|-----|------|
| | No of children | 8 | 10 | 13 | 20 | 25 | 15 | 9 | |
| Q.5 A) Explain various Index Numbers calculated in India. B) Explain various types of correlation. | | | | | | (08) (07) | | | |
| | | | | OR | | | | | |
| $O_{1}5 C$ Write sh | nort notes on (any 3) | \$ 6.0 | へのむ | 868 | 127 100.00 | | | | (15) |

- 1. Paid up value in insurance
- 2. Types of Ogives
- 3. Merits and demerits of Median
- 4. Characteristics of good measure of dispersion
- 5. Explain : a) Probability of an event
 - b) Complementary event

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