(210)

021222

VCD: _____ **FYBBI SEM: I QUANTITATIVE METHODS 2.30 HOURS MARKS:75**

All questions are compulsory
All questions carry equal marks.
Figures to right indicate full marks.

Q.I A) Fill in blanks choosing the correct alternative: (Any eight) (8)

1) Deciles divide the data into _____ equal parts.
   a) 4 b) 3
   c) 2 d) 10

2) Range is determined only by _____ points in a data set.
   a) One b) Two c) Three d) Four

3) If standard deviation of the given distribution is 2, then its variance is _____.
   a) 2 b) 3 c) 4 d) 8

4) Correlation shows whether two variables have a _____
   a) Linear relation b) Curvilinear relation
   c) Regression d) Non Linear

5) Coefficient of correlation lies between _____
   a) -1 and +1 b) -2 and +2
   c) O and 1 d) -3 and +3

6) There are _____ regression coefficients.
   a) 1 b) 2 c) 3 d) 4

7) If the frequency of a class is divided by the total frequency, we get _____ frequency.
   a) Percentage b) Relative
   c) Cumulative d) Summative

8) If the slope of regression line is positive, then r is _____
   a) Positive b) Negative
   c) Zero d) Independent.

9) _____ method is used to find regression lines
   a) Moving average b) Spearman's
   c) Least square d) Karl Pearson

10) The sum of all probabilities is _____
   a) 0 b) 1
   c) 2 d) 3

B) State True or False: (Any seven) (7)

1. Range is the sum of largest and smallest values in a data set.
2. Standard deviation is denoted by R.
3. Coefficient of correlation lies between 0 and 2.
4. Supply and Price of any commodities are positively corelated.
5. Regression analysis are used to determine cause and effect relationship.
6. Median can be found graphically with the help of histogram.
7. The arithmetic mean of 4 and 6 is 7.
8. Mode = 3 times mean -2 median
9. Range is difficult to calculate.
10. Mean deviation can be obtained from arithmetic mean.

Q2) **A)** Find interquartile range, quartile deviation and coefficient of quartile deviation.

Class Interval	2000-3000	3000-4000	4000-5000	5000-6000	6000-7000	7000-8000	8000-9000	9000-10000
Frequency	20	25	40	50	30	18	12	5

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B) Means and standard deviations are given below for two groups. Find combined standard deviation for the following. (7)

n_1=100	$Mean = 40$	$SD = 5$
n_2=200	$Mean = 43$	$SD = 4$

C) Find class width, class mark, less than cumulative, greater than cumulative, relative frequency and percentage frequency for the following (8)

Class Interval	50-60	60-70	70-80	80-90	90-100
Frequency	07	12	15	08	04

D) For the following in a test (out of 130). Find the mode for the following. (7)

Marks	10-30	30-50	50-70	70-90	90-110	110-130
No of Students	4	10	14	12	8	6

Q.3]

A) From the following data, find the two regression equations. (7)

$\sum(x-\bar{x})(y-\bar{y}) = 240$, n =5 , $\sum(x-\bar{x})^2 = 180$

$\sum(y-\bar{y})^2 = 350$, $\sum x = 200$, $\sum y = 220$

B) Calculate of coefficient of correlation between marks in math's and marks in English f given below (8)

Marks in Math's	90	70	80	50	60	70
Marks in English	45	40	45	65	60	50

OR

C) Calculate of coefficient of correlation between index of demand and index of price given below (8)

Index of Demand	101	108	105	107	109
Index of Price	117	98	102	115	108

D) Find the regression line of Y on X for the following data by Least Square Method (7)

X	3	5	7	9	11
Y	9	12	16	14	15

Q.4] A) Three cards are drawn at random from a full pack of cards. Find the probability that the three cards dawn are a king, a queen and a jack. (7)

B) Given the following pay off table, find optimal decision using (8)

a) Maximax Criteria b) Maximin Criteria c)Minimax regret criteria d)Laplace criteria

States of nature Courses of actions	S1	S2	S3	S4
A1	57	24	37	50
A2	24	28	32	13
A3	12	34	26	44

OR

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C) A bag contains 7 white balls ,5 black balls and 4 red balls. If two balls are drawn at random from the bag. Find the probability that (i) both the balls are white (ii) one is black ad other is red (8)

D) Find the expected value (Mean) for the following probability distribution of random variable X. (7)

X	0	1	2	3	4
P(x)	0.1	0.15	0.2	0.25	0.3

Q.5A) Define Statistics and explain its 5 characteristics. (15)

B) Explain the requisites of good measure of central tendency.

OR

C) **Write short notes on: (Any three)** (15).

1. Merits of Arithmetic mean.
2. Functions of statistics.
3. Characteristics of good measure of dispersion.
4. Merits of Standard deviation
5. Demerits of Mean deviation.