Q.P. Code : 04888

[Time: Two Hours thirty minutes] **[Marks:75]**

Please check whether you have got the right question paper.

N.B: 1. All Questions are compulsory and carry equal marks.
2. Use of simple calculator is allowed.
3. Figure to right indicate full marks to corresponding question.

Q.1 Choose the correct alternative from the following (Attempt any Eight) 8

1) If the value of coefficient of variation is more, the consistency of the data is _____

a) more b) less

c) same d) None of those

2) A Qualitative characteristic of an individual of a population is called_____

a) Attribute b) variate

c) data d) None of those

3) An objective function is maximized when it is a _____ function.

a) passive b) profit

c) cost d) None of the above

4) Graphical method can be applied to solve LPP when there are maximum _____ variable.

a) one b) more than one

c) two d) three

5) Statistics is a Numerical Quantity which is calculated from _____

a) population b) sample

c) data d) observations

6) Measures of central tendency derived from the most common value is_____

a) mean b) median

c) mode d) range

7) Suitable average for averaging the shoe size for children is _____

a) mean b) Geometric mean

c) median d) mode

8)The world 'Linear' means that the relationship are represented by _____

a) Diagonal lines b) curved lines

c) straight lines d) slanting lines

9) The Number of players in an Indian cricket team is an example of _____ distribution.

a) Discrete b) Continuous

c) Unknown d) None of these

10) Which of the following is not Measures of central tendency

a) Median b) Quartile

c) Mode d) None of these

B)State whether following statement are true or false (Attempt any Seven) 7

1) Quartile deviation is semi inter quartile range.

2) In the class interval 30-50, 50 is called upper class limit.

3) If the two regression coefficients are positive, then the coefficient of correlation is positive.

4) r = 0 includes strong relationship between the two variables concerned.

5) Median can be located graphically with the help of histogram.

6) There can be more than one modal values in a data set.

7) Deciles are measures of central tendency.

8) The different between the maximum and minimum value in the distribution is standard deviation.

9) Statistical method make the data easy to understand.

10) The small parts of the population are called units.

Q.2 A) Solve the following linear programming problem using graphical method 8

Maximize $Z = 30x + 50y$

Subject to constraint $x + y \leq 2$, $3x + y \leq 4$, $x \geq 0$, $y \geq 0$

B) Draw a histogram to represent the following data. Also locate the mode 7

Age in year	20-25	25-30	30-35	35-40	40-45	45-50
No of person	15	20	30	27	17	8

OR

P) A company manufactures two types of fertilizers, a liquid and a dry, one of the liquid fertilizer contains 2 units of chemical A and 4 units of chemical B per jar. The dry fertilizer contains 3 units each of both chemicals. The cost of liquid and dry fertilizer are respectively Rs. 3 and Rs.4 per jar. A farmer requires at 8

least 90 units of chemical A and at least 120 units of chemical B, formulate the above problem to minimize the cost.

q) The following data give the heights (in cms) and weight (in kgs.) of 24 children 7

Height in cms	100	117	100	99	105	110	108	107	106
Weight in kgs	35	49	36	35	35	40	35	42	46

Height in cms	96	112	115	103	102	101	109	108	108
Weight in kgs	40	50	51	37	38	39	40	42	43

Height in cms	107	106	99	97	113	114
Weight in kgs	38	44	35	40	48	50

Classify the data taking the class intervals of 5 units for both the characteristics.

Q.3 Find quartile deviation and coefficient of quartile deviation for the following data 8

Age in year	0-10	10-20	20-30	30-40	40-50
No. of person	10	20	30	20	20

B)For the following distribution of marks the mode is 47.5. Find the missing frequency

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of students	7	9	16	?	40	35	10	2

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OR

p) Find D_6 (sixth decile) & P_{73} (73rd percentile) for the following data

Monthly sales in 1000 Rs	10-12	12-14	14-16	16-18	18-20	20-22
No. of shops	35	50	15	60	30	10

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Q) Find mean and standard deviation for the following data.

Profit in Rs	300-400	400-500	500-600	600-700	700-800
No. of vendors	20	30	80	40	30

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Q.4 A) Find two regression line using least square method find value of y when x=5 10

X	0	1	2	3	4

Y	1	1.8	3.3	4.5	6.3

B) Find coefficient of correlation given the following data 5

$\Sigma x = 96$ $\Sigma y = 84$ $\Sigma x^2 = 1128$

$\Sigma y^2 = 1380$ $\Sigma xy = 312$ $n = 12$

OR

P) Find Karl Pearson coefficient of correlation for the following data 8

Index of demand	101	108	145	105	153
Index of price	117	97	118	102	110

Q) The following data are available for 15 student regarding the time spent is studies every day percentage marks in an examination find the expected percentage when a student studies for 3-5 hours every day. 7

	Times in Hours	Percentage
Average	4	80
Standard Deviation (S.D)	0.5	7

Coefficient of correlation is 0.55

Q.5 A) Write the Importance of statistics 8

B) What are the various ways of collecting primary data 7

OR

p) Write short notes (Attempt any three) 15

1) Advantages of Sampling

2) Pie diagram

3) Merits and Demerits of median

4) Biased and unbiased error

5) Type of population in statistical study