

(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 293210

Roll No.

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M.A.M.

Theory Examination (Semester-VI) 2015-16

BUSINESS STATISTICS

Time : 3 Hours

Max. Marks : 100

**Note: Attempt questions from all sections as per directions.
The figures in the right margin indicate marks.**

Section- A

1. Attempt all parts. (2×10=20)

- (a) What do you mean by measures of central tendency?
- (b) What is LPP?
- (c) What is the meaning of operation research?
- (d) What is correlation?
- (e) What is the meaning of partition values?
- (f) What do you mean by quartile deviation?

- (g) Write down the suitable formula for the following condition:-

When calculated value of mode does not lie in the modal class.

- (h) What do you mean by transportation problem?
- (i) What do you mean by range?
- (j) What are the methods of collecting primary data?

Section- B

Note:- Attempt any five questions of the following:

(10×5=50)

- (a) Define statistics and discuss in brief its nature & scope.
- (b) Goals scored by two teams A and B in a foot ball season were as follows:

No. of Goals	No. of Matches	
(scored in a match)	A	B
0	27	17
1	9	9
2	8	6
3	5	5
4	4	3

By calculating the coefficient of variation in each case, find which team may be considered more consistent.

- (c) Calculate coefficient of correlation between X and Y by the method of rank differences: -

X:	48	33	40	9	16	16	65	24	16	57
Y:	13	13	24	6	15	4	20	9	6	19

- (d) A paper mill produces two grades of paper namely X and Y. owing to raw material restrictions; it cannot produce more than 400 tones of grade X and 300 tones of grade Y in a week. There are 160 production hours in a week. It requires 0.2 and 0.4 hours to produce a ton of products X and Y, respectively with corresponding profits of Rs. 200 and Rs. 500 per ton. Formulate the above as an LPP to maximize profit and fit the optimum product mix.
- (e) Obtain the dual of the following LPP: -

$$\text{Min } z = 2x_2 + 5x_3$$

Subject to the constraints,

$$x_1 + x_2 \geq 2$$

$$2x_1 + x_2 + 6x_3 \leq 6$$

$$x_1 - x_2 + 3x_3 = 4$$

$$x_1, x_2, x_3 \geq 0$$

- (f) For two firms A and B, the following details are available :

	A	B
Number of employees	100	150
Average salary (Rs.)	16000	18000
Standard deviation of salary (Rs.)	16	12

- (i) Which firm pays large package of salary?
- (ii) What is the combined average salary?
- (iii) In which firm A or B is there greater variability in individual wages?
- (g) Find out the A.M. from the following data:

Class/Size	Frequency
2	1
3	2
4	2
5-7	3
7-10	5

(4)

10-15	10
15-20	8
20-25	4

(h) Calculate the mean from the following table:-

Salary (Rs.)	Frequency
Below 50	30
Below 70	46
Below 100	65
Below 110	85
Below 120	95
Above 120	5

Section- C

UPTU NOTES

Attempt any two parts of the following:- (15×2=30)

3. Find out the optimal solution of the following T.P. :-

	I	II	III	IV	V	Availability
I	5	8	6	6	3	8
II	4	7	7	6	5	5
III	8	4	6	6	4	9

Requirement 4 4 5 4 8

(5)

P.T.O.

4. From the following table, calculate the Karl Pearson's coefficient of correlation between age of husbands and wives:

Age of Wives (Years)	Age of Husbands (Years)					
	20-30	30-40	40-50	50-60	60-70	Total
55-65	-	-	-	4	2	6
45-55	-	-	4	16	5	25
35-45	-	1	12	2	-	15
25-35	-	10	25	2	-	37
15-25	5	9	3	-	-	17
	5	20	44	24	7	100

5. Write down the algorithm of simplex method for solution of a linear programming problem®



