

Min. $Z = 2x_1 + 3x_2$
 Subject to,

$$x_1 + x_2 \leq 4$$

$$6x_1 + 2x_2 \geq 8$$

$$x_1 + 5x_2 \geq 4$$

$$x_1 \leq 3$$

$$x_2 \leq 3$$

$$x_1, x_2 \geq 0$$

6. Solve the following TP by N: W. role:-

	I	II	III	a_i
1	2	7	4	5
2	3	3	1	8
3	5	4	7	7
4	1	6	2	14
b_j	7	9	18	

OR

Discuss Hungarian method.

7. What is meant by the measures of central tendency? What are the characteristics of a good measure of central tendency.

OR

A company is faced with the problem of assigning four machines to six different jobs (one machine to one job only).

The profits are estimated as follows:

Jobs	Machines			
	A	B	C	D
1	3	6	2	6
2	7	1	4	4
3	3	8	5	8
4	6	4	3	7
5	5	2	4	3
6	5	7	6	4

Solve the problem to maximize the total profits.



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

PAPER ID : 293210

Roll No.

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MAM
 (SEM. II) THEORY EXAM. 2014-15
 BUSINESS STATISTICS

Time : 3 Hours]

[Total Marks : 100

Note : Attempt the questions from each sections as per given instructions.

SECTION - A

Q1. Attempt any **four** questions from the following: 5x4=20

- What do you mean by operation research? What are its applications?
- What is the meaning of partition value? Explain.
- What do you mean by correlation? Explain with an example.
- In a batch of 15 students, 5 students failed in a test. The marks of 10 students who passed were:
 9 6 7 8 8 9 6 5 4 7
 What is the median of the marks of all the 15 students?
- What do you mean by empirical mode?
- Write the advantages of linear programming techniques.

SECTION - B

Q2. Attempt any *three* questions from the following: 10x3=30

- (a) Define statistics and discuss its importance and limitations.
- (b) Define the correlation and the regression analysis and also discuss the limitations of regression and correlation analysis.
- (c) Discuss the applications of linear programming techniques in business decision - making.
- (d) Calculate mode the from the following series:-

C.I.	f	C.I.	f
0 – 9	32	40 – 59	48
10 – 19	36	60 – 79	24
20 – 29	20	80 – 99	2
30 – 39	30		

- (e) Solve the following transportation problem and check the optimality.

	To			Supply
	1	2	3	
1	2	7	4	5
From 2	3	3	1	8
3	5	4	7	7
4	1	6	2	14
Demand	7	9	18	34

SECTION - C

Q3. Attempt the question from the following: 10x5=50

Calculate quartiles from the following distribution:-

C.I.:	0-9	10-19	20-29	30-39	40-49	50-59	60-69
Frequency:	3	8	17	35	20	12	5

OR

Goals scored by the two teams A and B in a football season were as follows:

No. of Goals (Scored in a match)	No. of matches	
	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.

- 4. Find the Karl - Pearson's coefficient of correlation between ages and playing habits of the people from the following informations :-

Age Group (in years)	No. of People	No. of Players
15 and less than 20	200	150
20 and less than 25	270	162
25 and less than 30	340	170
30 and less than 35	360	180
35 and less than 40	400	180
40 and less than 45	300	120

OR

Explain the concept of regression. How does it differs from correlation? Why are there two regression lines?

- 5. Solve by Simplex method the following LP problem:-

$$\text{Max. } Z = 3x_1 + 2x_2$$

Subject to,

$$4x_1 + 3x_2 \leq 12$$

$$4x_1 + x_2 \leq 8$$

$$4x_1 - x_2 \leq 8$$

$$x_1, x_2 \geq 0$$

OR

Solve the following LPP by Graphical method :-