AR13 SET-01

Subject Code:13MBA1006

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
1 MBA I Semester Regular Examinations February-2014.
QUANTITATIVE ANALYSIS FOR BUSINESS DECISIONS

Time: 3 hours **Max Marks: 60**

Answer any *five* questions.
All questions carry equal marks.

1. Solve the following Linear Programing Problem by Simplex Method:
   Maximize $Z = 70 x_1 + 50 x_2$
   Subject to $4x_1 + 3x_2 \leq 240$,
   $2x_1 + x_2 \leq 100$,
   $x_1, x_2 \geq 0$.

2. Use the graphic method to solve the following LPP.
   Maximize $Z = 10 x_1 + 6 x_2$
   Subject to the constraints: $5 x_1 + 3 x_2 \leq 30$, $x_1 + 2 x_2 \leq 18$, $x_1, x_2 \geq 0$.

3. Outline and illustrate the procedure for testing a statistical hypothesis.

4. Define Regression and outline the procedure for estimating the normal equations using method of Ordinary Least Squares.

5. Determine an initial basic feasible solution for the following Transportation Problem by Vogel's Approximation Method:

	D1	D2	D3	D4	**Supply**
S1	19	30	50	10	7
S2	70	30	40	60	9
S3	40	8	70	20	18
Demand	5	8	7	14	34

6. A company management and the labour union are negotiating a new three year settlement. Each of these has 4 strategies. The pay of matrix is given below:

Company Strategies

Union Strategies	I	II	III	IV
I	20	15	12	35
II	25	14	8	10
III	40	2	10	5
IV	-5	4	11	0

Determine the strategy to be adopted by the management and union using the Saddle Point Principle. Also determine the value of the game.

7. In a study of the relationship between level education and income the following data was obtained. Find the correlation between them and comment.

Sample Numbers	Level Of Education (X)	Level of Income(Y)
A	10 Preparatory	25
B	15 Primary	10
C	25 University	8
D	20 Secondary	10
E	20 Secondary	15
F	5 Illiterate	50
G	25 University	60

8. The data collected in running a machine, whose cost is Rs.60,000 is given below: Determine the optimum period for replacement of the machine

Year	1	2	3	4	5
Resale Value (Rs)	42,200	30,000	20,400	14,400	9,650
Cost of Spares(Rs)	4,000	4,270	4,880	5,700	6,800
Cost of Labour(Rs)	14,000	16,000	18,000	21,000	25,000

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