

M.B.A. F.Y. (Part-I) (CBCS Pattern) Semester - I  
**PCB1F06 - Quantitative Techniques**

P. Pages : 2

Time : Three Hours



**GUG/S/23/10679**

Max. Marks : 70

- Notes : 1. Attempt **any five** questions.  
2. All questions carry equal marks.

1. Calculate Mean, Median and Mode from the following data: 14

Age	-10	-20	-30	-40	-50	-60	-70	-80
No. of Persons	15	30	53	75	105	110	115	125

2. Calculate the coefficient of correlation between the Total cultivates area and the area under wheat. 14

Total Cultivate Area					
Area Under Wheat	20-25	25-30	30-35	35-40	40-45
15-25	40	20	4	-	-
25-35	8	48	12	4	-
35-45	-	10	22	8	4
45-55	-	10	2	4	2
55-65	-	-	2	-	2

3. Fit a straight line trend by the least square method and tabulate the trend values and find the monthly increase in production. 14

Year	2001	2002	2003	2004	2005	2006	2007
Production ('000 tons)	77	88	94	85	91	98	90

4. A newspaper boy has the following probabilities of selling a magazine 14

No. of copy sold	10	11	12	13	14
Probability	0.10	0.15	0.20	0.25	0.30

Cost of copy is 50 ₹ and sale price is 80 ₹ He cannot return unsold copies. How many copies should be order?

5. Solve the following assignment problem to minimize time 14

Men	Jobs				
	1	2	3	4	5
A	2	9	3	7	1
B	6	8	7	6	1
C	4	6	5	3	1
D	4	2	7	3	1
E	5	3	9	5	1

6. A manufacturing company has 3 plant which supply to the distributors. Unit transportation cost are given below. Determine an optimal distribution for the company in order to minimize the total transportation cost. **14**

Plant	Distributors					Supply
	1	2	3	4	5	
A	5	8	6	6	3	80
B	4	7	7	6	6	50
C	8	4	6	6	3	90
Demand	40	40	50	40	80	

7. The standard weight of special purpose brick is 5 kg and it contains two basic ingredients  $B_1$  and  $B_2$ .  $B_1$  cost Rs 5/kg and  $B_2$  cost Rs 8/kg. Strength consideration indicate that the brick contains not more than 4 kg of  $B_1$  and a minimum of 2 kg of  $B_2$ . Since the demand for the product is likely to be related to the price of the brick find the minimum cost of brick satisfying the above condition. **14**
8. Explain simplex Method of solving Linear programming problem. Discuss the concept of degeneracy in simplex method. **14**
9. In what areas of management can the concept of Markov chains be applied? Discuss briefly. **14**
10. Write short note on **any two**. **14**
- Merits & Demerits of Measure of dispersion.
  - Uses of spearman's rank correlation coefficient.
  - Concept of decision Tree analysis.
  - Importance of Time series. Analysis in business forecasting.

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