Dr. Babasaheb Ambedkar Open University
Term End Examination July - 2016

Course	**: BBAIB**		
Subject Code	**: BBAIB – 203**	**Max. Marks**	**: 70**
Subject Name	**: Quantitative Techniques**	**Duration**	**: 03 hours**
Date	**:**	**Time**	**:**

SAMPLE QUESTION PAPER

Section A

Answer the following (any three) **(30)**

1. The following information is available regarding four different jobs to be performed and about the operators capable of performing jobs:

Jobs (Time taken in hours)					
		A	B	C	D
Operators	I	4	7	5	6
	II	--	8	7	4
	III	3	--	5	3
	IV	6	6	4	2

Operator II cannot be assigned to Job A, and Operator III cannot be assigned to Job B. You are required to find the optimal assignment schedule and the total time taken to perform the jobs.

2. A furniture manufacturing company plans to make two products, i.e. chairs and table, from the available resources which consists of 400 cubic feet of mahogany timber and 450 man hours of labor. It knows that to make a chair it requires 5 cubic feet of timber and 10 man hours and yields a profit of Rs. 80/-. To manufacture a table, it requires 20 cubic feet of timber and 15 man hours and yield a profit of Rs. 90/-. Determine how many chairs and tables the company can make keeping within the resources constraints so as to achieve maximum profit. Formulate the LPP model and provide its graphical solution.

3. Calculate the coefficient of correlation from the following data by the method of Rank Correlation.

X	75	88	95	70	60	80	81	50
Y	120	134	150	115	110	140	142	100

4. Calculate the regression equation for the following data given of BIG Airlines

No. of passengers	Cost (Rs. 1,000)
61	4.280
63	4.080
67	4.420
69	4.170
70	4.480
74	4.300
76	4.820
81	4.700
86	5.110
91	5.130
95	5.640
97	5.560

5. Two related experiments are performed. The first has three possible, mutually exclusive outcome: *A, B, and C*. The second has two possible, mutually exclusive outcomes: *X and Y*. We know P(A) = 0.2, and P(B) = 0.65. We also know the following conditional probabilities if the result of the second experiment is X: $P(X|A) = 0.75$, $P(X|B) = 0.60$ and $P(X|C) = 0.40$. Find $P(A|X)$, $P(B|X)$, and $P(C|X)$. What is the probability that the result of the second experiment is Y?

Section B

Answer the following (any four) **(20)**

1. Calculate the geometric mean for the following data

Sr. No.	Class Interval	Frequency
1	0-10	5
2	10-20	3
3	20-30	2
4	30-40	6
5	40-50	4

2. Calculate 35th percentile and 55th percentile for the following data.

16, 28, 29, 13, 17, 20, 11, 34, 32, 27, 25, 30, 19. 18. 33

3. Find out the standard deviation for the following data using assumed mean as 50.

48, 43, 65, 57, 31, 60, 37, 48, 59, 78

4. Explain the limitations of linear programming.

SAMPLE QUESTION PAPER

5. Using VAM, find the initial feasible solution for the below given transportation problem.

	W1	W2	W3	W4	Supply
P1	190	300	500	100	70
P2	700	300	400	600	90
P3	400	100	400	200	180
Demand	50	80	70	140	340

6. What do you understand by harmonic mean? State its characteristics and explain the advantages and disadvantages of harmonic mean.

Section C

A. MCQ (2x5) (10)

1. Coefficient of correlation will always be
   a. More than 0
   b. More than -1
   c. Less than -1
   d. Between -1 and 1
2. Which theory concerns making sound decisions under conditions of certainty, risk, and uncertainty
   a. Game theory
   b. Decision theory
   c. Network analysis
   d. None of the above
3. If the number of observations are 30 and the value of arithmetic mean is 15, then sum of all values is:
   a. 150
   b. 400
   c. 450
   d. 300
4. Previous probabilities in Bayes theorem that are changed with the help of new available information are classified as:
   a. Independent probabilities
   b. Interior probabilities
   c. Posterior probabilities
   d. Dependent probabilities
5. If the feasible region of an LPP is empty, the solution is _____

SAMPLE QUESTION PAPER

a. Unbounded
b. Degenerate
c. Infeasible
d. None of the above

B. Do as Directed (2x5) (10)

1. Write short note on discrete and continuous variable.
2. Explain in brief the standard error and coefficient of determination.
3. What do you understand by degeneracy in basic feasible solution?
4. Briefly explain the concept of decision analysis.
5. Write short note on measures of dispersion.

SAMPLE QUESTION PAPER