Code: **17BA1T6**

I MBA - I Semester-Regular/Supplementary Examinations
January 2020

QUANTITATIVE ANALYSIS FOR BUSINESS DECISION

Duration: 3 hours   Max. Marks: 60

SECTION-A

1. Answer the following: **5 x 2 = 10 M**

a) Write any two characteristics of a good measure of central tendency.

b) Five men in a company of 20 are graduates. If 3 men are picked out of 20 at random, find the probability that they are all defective.

c) Define level of significance.

d) What are the advantages of linear programming problem?

e) How can you say that the transportation problem is unbalanced?

SECTION – B

Answer the following: **5 x 8 = 40 M**

2. a) The arithmetic mean and the standard deviation of a set of 9 items are 43 and 5 respectively. If an item of a value is added to the set, find the mean and standard deviation of 10 items given.

OR

b) Following figures give the production of non-fatty dry milk during the twelve months of a year.

Months	: Jan.	Feb.	Mar.	Apr.	May.	Jun.
Production : (in million lbs)	83.5	81.6	95.8	111.5	131.4	126.5

Months	: Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Production: (in million lbs)	98.7	76.2	53.2	50.3	49.3	67.3

Calculate Coefficient of variation.

3. a) For a proposal, the average cash flow has been worked out as Rs.350 lakhs with standard deviation of Rs. 50 lakhs, calculate the following:

i) Probability that the cash flow will exceed Rs. 400 lakhs.

ii) Probability that cash flow will be between 300 and 400 lakhs.

OR

b) The number of mistakes counted in one hundred typed pages of a typist revealed that he made 2.8 mistakes on an average per page. Determine the probability that in a page typed by him
i) there is no mistake.
ii) there are two or less mistakes.

4. a) The mean height of 50 male students who showed above average participants in college athletics was 68.2 inches with a standard deviation of 2.5 inches while 50 male students who showed no interest in such participation had a mean height of 67.5 inches with a standard deviation of 2.8 inches. Test the hypothesis that male students who participated in college athletics are taller than other male students.

OR

b) An IQ test was administered to 5 persons before and after they were trained. The test results are given below:

Candidates	:	A	B	C	D	E
IQ before training	:	110	120	123	132	125
IQ after training	:	120	118	125	136	121

Test whether there is any change in IQ levels after the training programme. Use 5% level of significance.

5. a) A marketing manager wishes to allocate his annual advertising budget of Rs. 20,000 to two media vehicles A and B. The unit cost of message in media A is Rs. 1,000 and that in B it is Rs. 1500. Media A is a monthly magazine and not more than one insertion is desired in one issue. At least 5 messages should appear in media B. The expected effected audience for unit messages in the media A is 40,000 and for media B is 55,000. Develop a mathematical model.

OR

b) Solve the following LPP by simplex method.

Maximize $\quad Z = 8x_1 + 16x_2$

subject to $\quad x_1 + x_2 \leq 200, \quad x_2 \leq 125, \quad 3x_1 + 6x_2 \leq 900$

and $\quad x_1, x_2 \geq 0.$

6. a) What are the steps involved in solving a Transportation problem? Explain.

OR

b) Define a two-person zero-sum game. What are the underlying assumptions of a game?

SECTION-C

7. Case Study   **1 x 10 = 10 M**

A marketing manager has five salesmen and five sales districts. Considering the capabilities of the salesmen and nature of districts, the marketing manager estimates that sales per month (in hundred rupees) for each salesman in each district would be as follows:

Salesmen	Districts				
	A	B	C	D	E
1	32	38	40	28	40
2	40	24	28	21	36
3	41	27	33	30	37
4	22	38	41	36	36
5	29	33	40	35	39

Discuss and find the assignment of salesmen to districts that will result in optimum sales.