Total Pages : 6 Roll No. .....

MS-104/CP-1004

Quantitative Techniques in Management

प्रबन्ध में परिमाणात्मक तकनीकें

Master of Business Administration / Diploma in Management
(MBA-10/12/13/16/17 / DIM-10/16/17)

Ist Semester Examination, 2019 (June)

Time : 3 Hours] **Max. Marks : 80**

Note : This paper is of Eighty (80) marks divided into three (03) sections A, B and C. Attempt the questions contained in these sections according to the detailed instructions given therein.

SECTION–A

(Long Answer Type Questions)

Note : Section 'A' contains four (04) long answer type questions of Nineteen (19) marks each. Learners are required to answer any two (02) questions only.

(2×19=38)

1. A manufacturer has three products A, B and C. These products are produced on three machines M_1, M_2 and M_3. The processing time required per unit of these products are as under :

Product	Processing Time per unit (Machine Hours)		
	M_1	M_2	M_3
A	3	2	1
B	2	3	-
C	2	3	-
Spare Capacity (per week Hrs.)	240	270	60

Product A gives a profit of ₹ 10 per unit while products B and C generate a profit of ₹ 6 per unit. How much quantity of each product should be produced so as to maximize the profit ?

2. Explain the difference between a transportation problem and an assignment problem. How will you solve an assignment problem where a particular assignment is prohibited ?

3. You are working as a purchase manager for a company. The following information has been supplied to you by two manufacturers of electric bulbs :

Information	Company A	Company B
Mean life (in hours)	1300	1248
Standard deviation (in hours)	82	93
Sample size	100	100

Which brand of bulbs are you going to purchase if you desire to take a risk at 5% ?

4. What is that single value which completely defines a Poisson distribution ? How are mean and variance of a Poisson distribution related to this single value ? Explain how do we go about fitting a Poisson distribution.

SECTION–B

(Short Answer Type Questions)

Note : Section 'B' contains eight (08) short answer type questions of eight (08) marks each. Learners are required to answer any four (04) questions only. (4×8=32)

1. Define dependent and independent events. Illustrate with suitable examples.

2. Describe and explain the economic implicatins of queues.

3. Define Chi-square statistic. What are the important properties of a chi-square distribution ?

4. Write short notes on the following :

(a) Decision tree.

(b) Roll-back technique.

5. "Regression and correlation are two sides of the same coin." Explain.

6. List the practical steps involved in testing of hypothesis.

7. What are the conditions for the use of t-test and list out the properties of t-distribution.

8. What do you understand by an unbalanced transportation problem ? How do you start in this case ?

SECTION–C

(Objective Type Questions)

Note : Section 'C' contains ten (10) objective type questions of one (01) mark each. All the questions of this section are compulsory. (10×1=10)

Fill in the blanks :

1. In a linear programming model all relationships are _____.

2. The transportation model is a special case of _____.

3. In an assignment model the number of rows must be equal to the number of _____.

4. There is a sharp increase in the length of the queue when the utilisation factor increases beyond _____.

5. A decision maker has no control over _____.

Indicate whether the following statements are True or False :

6. Null hypothesis is not tested but alternative hypothesis is tested. (True/False)

7. Type I error is an error committed by the test in rejecting a true null hypothesis. (True/False)

8. Degrees of freedom in case of two samples of sizes 50 and 60 are 109. (True/False)

9. There is positive correlation beween ages of husbands and age of wives. (True/False)

10. If both the regression coefficients are negative, the correlation coefficient will be positive. (True/False)
