

00473

MANAGEMENT PROGRAMME

Term-End Examination

December, 2018

**MS-008 : QUANTITATIVE ANALYSIS FOR
MANAGERIAL APPLICATIONS**

Time : 3 hours

Maximum Marks : 100

(Weightage : 70%)

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- Note :**
- (i) *Section A has six questions, each carrying 15 marks. Attempt any four questions from this section.*
 - (ii) *Section B is compulsory and carries 40 marks. Attempt both questions.*
 - (iii) *Use of calculator is permitted.*
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SECTION - A

1. What is statistical decision theory ? Describe the four different states of decision environment in managerial applications. Which is the most prevalent state ?
2. The Revenue function for a product is $R = 600q - 0.5q^2$ and the cost function is $C = 1500 + 140q - 4q^2 + 5q^3$. Determine the profit function and the value of q for which profit is maximum.

3. A certain manufacturing process produces electrical fuses of which, in the long run, 15% are defective.

Find the probability that in a sample of 10 fuses selected at random there will be :

- (a) no defective
(b) at least one defective
4. The following table gives the number of aircraft accidents that occurred during the various days of a week. Find whether the accidents are uniformly distributed over the week.

Days	Sun	Mon	Tue	Wed	Thurs	Fri	Sat
No. of Accidents	14	16	8	12	11	9	14

Given χ^2 at 6 d.f = 12.59

5. What is the major difference between probability and non-probability sampling ? Briefly outline the sampling methods that are covered under probability and non-probability sampling.
6. Write short notes on any three of the following :
- (a) Cofactor of an element of matrix
(b) Exhaustive events
(c) Standard deviation and standard error
(d) Criteria of optimism
(e) Disproportional stratified sampling

SECTION - B

7. A random sample of size 16 has 53 as mean. The sum of squares of the deviations from mean is 135. Can this sample be regarded as taken from the population having 56 as mean ? Obtain 95% and 99% confidence limits of the mean of the population.

(Given for $n = 15$, $t_{0.05} = 2.13$ and for $n = 15$, $t_{0.01} = 2.95$)

8. 'A' speaks truth in 75% cases and 'B' in 80% of the cases. In what percent of cases are they very likely to contradict each other in narrating the same incident ?
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