

MANAGEMENT PROGRAMME

(MP)

Term-End Examination

December, 2020

**MS-08 : QUANTITATIVE ANALYSIS FOR
MANAGERIAL APPLICATIONS**

Time : 3 Hours

Maximum Marks : 100

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.*

Section—A

1. Suppose the price p and quantity q of a commodity are related by the equation :

$$q = 30 - 4p - p^2$$

Find :

(i) Elasticity of demand, e_q defined as

$$= \frac{-d_q/q}{d_p/p} \text{ at } p = 2, \text{ and}$$

(ii) Marginal Revenue (MR) defined as $= \frac{dR}{dq}$,

where $R = p \cdot q$.

2. Explain arithmetic mean along with its properties. Also explain the relationship among mean, mode and median with the help of a diagram.
3. What do you understand by decision theory ? What are the various key issues in decision theory ? Explain decision tree approach also.
4. A stock-market analyst wants to estimate the average return on a certain stock. A random sample of 15 days yields an average (annualized) return of 10.37% and sample standard deviation is 3.5. Assuming a normal distribution of returns, give a 95% confidence

interval for the average return on this stock.
(The value for given statistic at $n = 14$ is 2.145).

5. What are long-term decisions ? What are the various methods used in forecasting long-term decisions ?
6. Write short notes on any *three* of the following :
 - (a) Classification of statistical methods
 - (b) Guidelines for choosing the classes
 - (c) Random variable
 - (d) Type I and Type II error
 - (e) Correlation coefficient

Section—B

7. A bag contains 4 red and 4 black balls, another bag contains 2 red and 6 black balls. One of the 2 bags is selected at random and a ball is drawn from the bag which is found to be red. Find the probability that it is drawn from 1st bag.
8. In a group of 300 students, each person is asked about his/her favourite subject area. Based on

data given below, is it reasonable to conclude that subject preference is independent of the gender :

Gender	Maths	Science	Humanities	Total
Male	37	41	44	122
Female	35	72	71	178
Total	72	113	115	300

Taking the significance level as 5%.

(The value of test statistic at 2 degree of freedom is 5.991).