**MMPC-005**

# MANAGEMENT PROGRAMME (MP)

# Term-End Examination

# December, 2022

## MMPC–005 : QUANTITATIVE ANALYSIS FOR MANAGERIAL APPLICATIONS

*Time : 3 Hours*          *Maximum Marks : 100*

*Note :* *Section A has six questions, each carrying 15 marks. Attempt any* ***four*** *questions. Section B is compulsory and carries 40 marks. Attempt both questions. Use of calculator is permissible.*

## Section—A

1. "The arithmetic mean is the most commonly used and readily understood measure of central tendency." Do you agree ? Comment. Also,

explain the mathematical properties of arithmetic mean.

2. The distribution of the total time a light bulb will burn from the moment it is first put into service is known to be exponential with mean time between failure of the bulbs equal to 1000 hrs. What is the probability that a bulb will burn more than 1000 hours ? (Given $e = 2.718$)

3. Calculate the standard deviation of the following distribution :

| Age | No. of Persons |
|-------|----------------|
| 20—25 | 170 |
| 25—30 | 110 |
| 30—35 | 80 |
| 35—40 | 45 |
| 40—45 | 40 |
| 45—50 | 35 |

4. What do you understand by 'Correlation Coefficient' ? Discuss the different types of association between variables.

5. Explain the 'Chi-square distribution'. Explain how would you use it in testing independence of categorised data and testing the goodness of fit.

6. Write short notes on any *three* of the following :

   (a) Guidelines for choosing the class

   (b) Poisson distribution

   (c) Two-tailed test

   (d) Type I and Type II error

   (e) Rank correlation

## Section—B

7. Calculate the coefficient of correlation from the following data :

| X | Y |
|---|---|
| 9 | 15 |
| 8 | 16 |
| 7 | 14 |

| | |
|---|---|
| 6 | 13 |
| 5 | 11 |
| 4 | 12 |
| 3 | 10 |
| 2 | 8 |
| 1 | 9 |

8. Explain the concept of Bernoulli process along with Binomial Distribution in detail.