No. of Printed Pages : 5 **MMPC–005**

MANAGEMENT PROGRAMME

(MP)

Term-End Examination

June, 2025

MMPC-005 : QUANTITATIVE ANALYSIS FOR MANAGERIAL APPLICATIONS

Time : 3 Hours *Maximum Marks : 100*

Note : *Answer any* ***five*** *questions. All questions carry equal marks. Calculators are allowed.*

1. Explain the concept of random variable and probability distribution. Elucidate the usefulness of probability distribution in decision-making.

2. Consider the following grouped data which relate to the profits of 100 companies :

Profit (in ₹ lakhs)	**No. of Companies**
20–30	4
30–40	8
40–50	18
50–60	30
60–70	15
70–80	10
80–90	8
90–100	7

Calculate Q_2 and D_6 and interpret these values.

3. Give various reasons which make sampling a desirable, and in many cases, the only course open for making an inference about a population.

4. If the probability is 0.30 that a Management Accountant's job applicant has a post-graduate degree, 0.70 that he had some work experience as a chief financial accountant and 0.20 that he has both. Out of 300 applicants approximately, what number would have either a post-graduate degree or some professional work experience ?

5. What procedure do you follow while testing for difference between proportions ? State the null and alternative hypotheses. What is the use of the pooled estimate of p ?

6. A company that manufactures batteries guarantees them a life of 24 months :

   (i) If the average life has been found in tests to be 33 months and a S.D. of 4 months, how many will have to be replaced under guarantee if a normal distribution is assumed for battery lifetimes ?

   (*ii*) If annual sales are 10,000 batteries at a profit of ₹ 50 each and each replacement costs the company ₹ 100, find the net profit.

   (Given Z value corresponding to area between X = 24 and $\bar{X}$ = 33 is 0.4878.)

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

   (a) Discrete and Continuous data

   (b) Relative skewness

   (c) Cluster *vs.* Stratum

   (d) Type 1 and Type II errors

   (e) Least square criterion

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