MS-8

MANAGEMENT PROGRAMME

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Term-End Examination
December, 2012

MS-8 : QUANTITATIVE ANALYSIS FOR MANAGERIAL APPLICATIONS

Time : 3 hours　　　　　　　　　　*Maximum Marks : 100*

(Weightage 70%)

Note (i)　　*Section-A has six questions, each carrying* 15 *marks. Attempt any four questions from this section.*

(ii)　　*Section-B has two questions, each carrying 20 marks. Attempt both the questions from this section.*

(iii)　　*Tables may he supplied on request use of calculators may be permitted.*

SECTION-A

1. If an amount of Rs 10,000/- is invested at a simple **15** interest of 12% per annum, how much it will become at the end of 5 years ? And if this amount is invested at a compound interest of 10% per annum (the interest being compounded on yearly basis), how much it will become at the end of 5 years ? Also answer that the invested amount will be more at the end of 5 years in which case.

2. An insurance company insured 2,000 scooter, 4,000 car, 6,000 truck drivers with their probability of meeting accidents being. .01, .03, .15 respectively. Find the probability that the person who met an accident is a scooter driver. 15

3. Give definitions of less than and more than ogives. After this, draw their graphs for the frequency distribution showing the marks of 60 students in the table below : 15

Marks	Number of students	Marks	Number of students
10-20	4	40-50	20
20-30	6	50-60	18
30-40	10	60-70	2

Table — Frequency distribution showing number of students in intervals of marks.

4. The results of a survey of 320 families with 5 children together with observed and expected frequencies are shown in the table below : 15

Number of boys and girls	5 Boys and 0 girl	4 Boys and 1 girl	3 Boys and 2 girls	2 Boys and 3 girls	1 Boy and 4 girls	0 Boy and 5 girls	Total
Observed frequencies	18	56	110	88	40	8	320
Expected frequencies	10	50	100	100	50	10	320

Using Chi-square Text of Goodness of Fit, answer whether the hypothesis that the births of boys and girls are equally likely at a significance level of 1 percent.

5. Name the Types of Probability Sampling Methods. **15** Then explain the terms stratified and cluster sampling. While doing so, draw diagrams. Thereafter compare the Two Types of Sampling Methods.

Write short notes on *any three* of the following **15** topics :

(a) Total and Marginal revenues.

(b) Quartile deviation.

(c) Binomial distribution.

(d) Type I and Type II Errors in the context of Hypothesis testing.

(e) Delphi method of forecasting.

SECTION-B

7. Find the equation of the regression line of y on x **20** for the data given in the table below :

x	1	2	3	4	5
y	5	7	9	10	11

And from the equations of the regression line, find the value of y corresponding to x = 2.5.

8. For the system of non homogeneous linear **20** equations.

$$2x_1 + 3x_2 + 4x, = 1$$
$$-2x_1 - 3x_2 + 5x_3 = 8$$
$$4x_1 + 3x_2 + 2x_3 = 1,$$

do the following :

(a) Prove that the above system of equations is consistent, i.e., the system has at least one solution.

(b) Solve the above system of equations by any one method out of Cramer's rule, Inverse matrix method, Gauss-Jordan method.

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