

MANAGEMENT PROGRAMME

Term-End Examination

June, 2013

MS-8 : 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 has two questions, each carrying 20 marks.
Attempt both the questions from this section.
- (iii) Tables may be supplied on request. Use of calculators
may be permitted.
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SECTION-A

1. If an amount of Rs. 10,000/- is invested at a simple interest of 15% per annum, how much it will become at the end of 5 years ? And if this amount is invested at a compound interest of 12% 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. **15**

2. In a bolt factory, machines A, B, C manufacture 25%, 35%, 40% bolts respectively. Out of these bolts, 5%, 4%, 12% defective ones came from machines A, B, C respectively. Find the probability that a bolt found to be defective came from machine B. 15
3. Give definitions of Less than and More than ogives. 15
After this, draw their graphs for the frequency distribution showing the marks of 56 students shown in the table below :

Marks	Number of students
0 - 10	4
10 - 20	8
20 - 30	11
30 - 40	15
40 - 50	12
50 - 60	6

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 test of goodness of fit, answer whether the hypothesis that the births of boys and girls are equally likely at a significance level of $\alpha = .05$

5. Name the types of Probability Sampling Methods. 15
Then explain the terms Simple Random and Stratified Sampling. While doing so, draw diagrams wherever required. Thereafter compare the two types of sampling methods.
6. Write short notes on *any three* of the following 15
topics :
- (a) Total and Average revenues
 - (b) Standard deviation
 - (c) Normal distribution
 - (d) Null and Alternative hypothesis
 - (e) Opinion polls method of forecasting

SECTION-B

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

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

And from the equation of the regression line, find
the value of x corresponding to $y = 6$.

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

$$6y_2 + 10y_3 = 2$$

$$y_1 + 6y_2 + 10y_3 = 3$$

$$-3y_2 + y_3 = 5,$$

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.