

MANAGEMENT PROGRAMME

Term-End Examination

June, 2015

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) Use of scientific calculator is permitted.
- 

SECTION - A

1. The cost accountant of a company has derived the following expression relating total cost C to the number of units (x) of a product. 15

$$C = 1440 + 125x + 0.1x^2$$

Find :

- (a) The number of units (x) that will minimise the average cost.
- (b) The value of average cost and total cost corresponding to above number of units.

2. The residents of Lucknow city were surveyed recently to determine readership of newspapers available. 55% of the residents read the morning paper, 65% read the evening paper, and 30% read both newspapers. Find the probability that a resident selected reads either the morning or evening paper or both the papers. 15
3. In a factory, four workers are assigned to complete an order received for dispatching 2000 boxes of a particular commodity. Worker A takes 10 minutes per box, B takes 15 minutes per box, C takes 20 minutes per box and D takes 25 minutes per box. Find the average time taken per box by the group of workers. 15
4. An auto company decided to introduce a new six cylinder car whose mean petrol consumption is claimed to be lower than that of the existing auto engine. It was found that mean petrol consumption for the 100 cars was 15 km per litre with the standard deviation of 5 km per litre. 15
- Test for the company at 5% level of significance whether the claim that the new car petrol consumption is 14.50 km per litre on the average is acceptable. The critical value of Z at 5% level of significance is 1.96.
5. Define Hypothesis. Explain various types of errors in testing of Hypothesis. Describe various steps involved in the "Hypothesis Testing". 15

6. Write short notes on **any three** of the following : **3x5**
- (a) Polynomial Function
  - (b) Median
  - (c) Criterion of pessimism
  - (d) Cluster sampling
  - (e) Delphi method of forecasting

**SECTION - B**

7. Using the method of least squares, find the regression equation of  $x$  on  $y$  for the data given in the table below : **20**

$x$	1	2	3	4	5
$y$	6	9	12	15	18

And from the regression equation obtained, find the value of  $x$  corresponding to  $y = 20$ .

8. Solve the following system of non-homogeneous linear equations using Cramer's rule : **20**

$$x + 2y - z = -1$$

$$3x + 8y + 2z = 28$$

$$4x + 9y + z = 14$$

---