

MANAGEMENT PROGRAMME**Term-End Examination****June, 2007****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 is **compulsory** and carries 40 marks. Attempt both questions.
 - (iii) Statistical tables may be supplied on request.
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SECTION A

1. What are models ? Discuss the role of models in decision-making. How can you classify models on the basis of behaviour characteristics ?

2. In a frequency distribution, the coefficient of skewness (given by Bowley) based upon the quartiles is 0.6. If the sum of the upper and lower quartiles is 100 and median is 38, find the value of the upper and lower quartiles.
3. X is a normal variate with mean 30 and standard deviation 5. Find the probabilities that
- (i) $26 \leq X \leq 40$
- (ii) $X \geq 45$
4. The means of two single large samples of 1000 and 2000 members are 67.5 inches and 68.0 inches respectively. Can the samples be regarded as drawn from the same population of standard deviation 2.5 inches? (Test at 5% level of significance)
5. The following table gives the number of aircraft accidents that occurred during the various days of the week. Test whether the accidents are uniformly distributed over the week.

Days	Mon	Tue	Wed	Thurs	Fri	Sat
Accidents	14	18	12	11	15	14

Given the values of test statistic significant at 5, 6, 7 d.f. are respectively 11.07, 12.59 and 14.07 at the 5% level of significance.

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

- (a) Absolute value function
- (b) Quantiles
- (c) Criteria of pessimism in decision theory
- (d) Cluster vs. Stratum
- (e) Moving average models

SECTION B

7. Two dice, one green and the other red are thrown. Let A be the event that the sum of the points on the faces shown is odd, and B the event of at least one ace (number 1). Find the probabilities of the events

(i) $\bar{A} \cup \bar{B}$

(ii) $A \cap \bar{B}$

(iii) $\bar{A} \cup B$

(iv) $\overline{(A \cup B)}$

(v) $A \cup (\bar{A} \cap B)$

8. The following is the heights of fathers (X), in inches and their sons (Y) :

X	65	66	67	67	68	69	70	72
Y	67	68	65	68	72	72	69	71

Obtain the equation of the line of regression of X on Y. Also find estimate of X for Y = 70.