

**MASTER OF BUSINESS ADMINISTRATION  
(NETWORK INFRASTRUCTURE  
MANAGEMENT)  
(MBANIM)**

**Term-End Examination**

**December, 2011**

**MCR-010 : QUANTITATIVE ANALYSIS FOR  
MANAGERIAL APPLICATIONS**

*Time : 3 hours*

*Maximum Marks : 100*

**Note :** *Attempt any five questions. All questions carry equal marks.*

1. (a) What is business forecasting ? How does analysis of time series help in business forecasting ? **10**
- (b) The following marks have been obtained by a class of students in statistics (out of 100) : **10**

Paper I	80	45	55	56	58	60	65	68	70	75	85
Paper II	82	56	50	48	60	62	64	65	70	74	90

Find the both lines of regression.

2. (a) A speak the truth in 60% and B in 75% of the cases. In what percentage of cases are they likely to contradict each other in stating the same fact ? **10**
- (b) Show that the mean deviation from the mean of the normal distribution is about  $\frac{4}{5}$  of its standard deviation. **10**

3. (a) Distinguish between : 10
- (i) Geometrical mean and Harmonic mean
  - (ii) Median and mode
  - (iii) Quartiles and deciles
- (b) The arithmetic mean and the standard deviation of a series were calculated as 20 cm and 5 cm respectively. But while calculating them, an item 13 was measured as 30. Find the correct arithmetic mean and standard deviation. 10

4. (a) What is concurrent correlation coefficient ? 10  
What purpose does it serve ? State its properties.
- (b) A decision matrix with cost data is given 10  
below :

Alternatives	States of nature			
	$s_1$	$s_2$	$s_3$	$s_4$
$a_1$	1	3	8	5
$a_2$	2	5	4	7
$a_3$	4	6	6	3
$a_4$	6	8	3	5

Find best alternative using

- (i) Minimax Criterion
- (ii) Minimin Criterion

5. (a) Give one illustration each of the type of the data for which you would expect the frequency to be **10**  
 (i) fairly symmetrical  
 (ii) Positive skewed  
 (iii) U shaped  
 (iv) J shaped
- (b) Explain the following terms by an example **10**  
 of each.  
 (i) Simple and compound event  
 (ii) Mutually Exclusive events and independent events.
6. (a) What are the various functions of management? Explain each of them in brief with an example. **10**
- (b) Define the following terms as used in statistics. **10**  
 (i) Quantitative and qualitative variable  
 (ii) Discrete and continuous variable.
7. (a) The following table gives the number of accidents that took place in an industry during various days of the week. Test if accidents are uniformly distributed over the week using  $\chi^2$  test. **10**

Day	Mon	Tue	Wed	Thu	Fri	Sat
No. of accidents	14	18	12	11	15	14

- (b) Write *short notes* on the following : **10**  
 (i) Null hypothesis  
 (ii) Origin of theory of sampling

8. (a) Show that the function  $f: \mathbf{R} \rightarrow \mathbf{R}$  defined by  $f(x) = \cos(5x+2)$  is neither one-one nor onto. **10**

(b) Find the matrix  $A$  such that : **10**

$$\begin{bmatrix} 2 & -1 \\ 1 & 0 \\ -3 & 4 \end{bmatrix} A = \begin{bmatrix} -1 & -8 & -10 \\ 1 & -2 & -5 \\ 9 & 22 & 15 \end{bmatrix}$$

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