March 2012

Master of Business Administration (MBA) Examination

I Semester

Mathematics and Statistics for Managers

Time 3 Hours] [Max. Marks 80

Note- Attempt any five questions selecting at least two question from each section A and B. All questions carry equal marks.

Section A

1. (a) Define limit of a function and explain the concept by a giving suitable example.

   (b) Find whether function :

   $$f(x) = \frac{x^2 - a^2}{x - a}.$$

   is continuous at $x = a$.

2. Solve following systems of equations:

   (i) $2x + 3y + 4z = 9$

   $x + y - 2z = 0$

   $x + y + z = 3.$

   (ii) $x + y + z - 0$

   $2x - 3y + 5z = 0$

   $2x + 5y - 7z = 0.$

3. (a) Find : $\int \frac{1}{a^2 + x^2}\, dx.$

   (b) $\frac{dy}{dx} = (2 - \sin x + \cos x)\,(4e^{-x} + x^{3/2} + 2).$

4. Write short notes on any two of the following. Illustrate your answer with suitable examples:

   (a) Venn Diagram.

   (b) Inverse of a Matrix.

   (c) Consumer Surplus.

Section B

5. Define Statistics. Discuss iis scope and limitation in Managerial Decision Making.

6. (a) Define Karl Pearson's coefficient of correlation and discuss its application.

   (b) Calculate Karl Pearson's coefficient of correlation for following data:

X	:	1	3	5	7	9	11
Y	:	2	4	6	8	10	12

7. (a) What are additive and multiplicative laws of probability? Explain them with suitable examples.

   (b) The probability that a trainee will remain with a company is 0.6. The probability that an employee earns more than Rs. 10,000 per month is 0.5. The probability that an employee who is a trainee remain with the company or who earns more than Rs. 10,000 per month is 0.7. What is the probability that an employee earns more than Rs. 10,000 per month given that he is a trainee who stayed with the company?

8. Write short illustrative note on any two of the following:

   (a) Time Series Analysis.

   (b) Decision Making Under Risk.

   (c) Normal Distribution.

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