[Total No. of Questions - 10] [Total No. of Printed Pages - 3]
(2063)

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MBA 1st Semester Examination

Management Science-I (O.S.)

102

Time : 3 Hours **Max. Marks : 60**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/ continuation sheet will be issued.

Note : Attempt five questions in all, selecting one question from each unit.

UNIT - I

1. (a) Differentiate the function w.r.t. x. If $y = x^2$, then find the value of dy/dx. **(6)**

   (b) Differentiate w.r.t. x,

   If $y = x \log x + x^2 \log x + \log x$ **(6)**

2. (a) Differentiate the function w.r.t. x and the function is:

   $y = \sin(\cos x)^2$ **(6)**

   (b) Find all local and global maxima and minima for the following function:

   $$f(x) = \frac{2x^3}{3} - 3x^2 - 12x + 8$$ **(6)**

UNIT - II

3. (a) Let $I = \int \frac{2x}{1+x^2}$ **(6)**

(b) If $I = \int \frac{(pogx)^2}{x}$ **(6)**

4. (a) Show that the function defined by $f(x) = 2x^2 - 1$, is a continuous function at $x = 3$. **(6)**

(b) Let $I = \int \sin^{01}(\cos x)$ **(6)**

UNIT - III

5. Define the word, "Average". Explain the characteristics and requisites of "good average". How average can be calculated? Give formula.

6. The mean of a bio-nomial distribution is 40 and standard deviation is 6. Calculate n, p and q.

UNIT - IV

7. What are the basic steps in testing of hypothesis? What are applications of t-test. Explain with appropriate formulas. **(12)**

8. The following data relate to advertising expenditure (in Lakhs of Rupees) and their corresponding sales (in crores of Rupees).

Advertising Expenditure	Sales Estimates
10	14
12	17
15	23
23	25
20	21

(12)

UNIT - V

9. (a) What is Index Number? Give importance of Index numbers. **(4)**

(b) Compute Index Numbers of price from the following data by applying:

(i) Paasche Method (ii) Bowley Method

Commodity	2004		2005	
	Price	Quantity	Price	Quantity
A	2	8	4	6
B	5	10	6	5
C	4	14	10	5
d	2	19	2	13

(8)

10. The following fixed Base Index Number, Convert the data into chain Base Index.

Year	Index	Year	Index
1995	110	2000	410
1996	100	2001	400
1997	200	2002	380
1998	120	2003	370
1999	40	2004	340
		2005	360

Shift the base from 1995 to 2001 and recast the Index Numbers. **(12)**