



I Semester M.B.A. (Day) Examination, March 2011

(2007-08 Scheme)

MANAGEMENT

Paper – 1.5 : Business Mathematics and Analytics

Time : 3 Hours

Max. Marks : 75

SECTION – A

Answer **any six** questions. **Each** question carries **two** marks.

(2×6=12)

1. a) List the uses of statistics.
- b) What is the sign test ?
- c) What are Index Numbers ?
- d) What is a null hypothesis ?
- e) Define Integration.
- f) What is Binomial distribution ?
- g) What is meant by level of confidence ?
- h) What is cluster sampling ?

SECTION – B

Answer **any three** questions. **Each** question carries **eight** marks.

(3×8=24)

2. a) Why is statistics called imposing mathematics ?
- b) Following are the marks obtained by two students 'A' and 'B' in 10 tests of 100 marks each.

Tests	1	2	3	4	5	6	7	8	9	10
A	44	80	76	48	52	72	72	51	60	54
B	48	75	54	60	63	69	72	51	57	66

Find who is better in studies and if consistency is the criterion for awarding a prize, who should get the prize ?

P.T.O.



3. Using the chi square test, analyse the following data to determine whether the preference pattern of consumers for cell phones is dependent on income levels.

Cell phones	Low	Medium	High	Total
Nokia	65	90	100	255
Motorola	35	40	80	155
Ericsson	50	60	220	330
Total	150	190	400	740

4. a) In an AP of 3, 9, 15, ... find the (i) sum of the first 14 terms and (ii) the twelfth term ?
- b) P and Q play for a prize of Rs. 1,00,000. P is to throw a dice first and is to win if he throws 1. If he fails, Q is to throw and is to win if he throws 1 or 2. If he fails, P is to throw again and is to win if he throws 1, 2 or 3. Find their respective expectations.
5. The average monthly sales of 5000 firms are normally distributed. Its mean and standard deviation are Rs. 36,000 and Rs. 10,000 respectively. Find :
- The number of firms the sales of which are over Rs. 40,000.
 - Percentage of firms the sale of which will be between Rs. 38,500 and 41,000.
 - The number of firms the sales of which will be between Rs. 30,000 and Rs. 40,000.
 - The number of firms the sales of which are less than Rs. 30,000.
6. Determine the regression equation X on Y and Y on X for the following data :

X	12	14	16	20	32
Y	34	40	38	42	50



SECTION - C

Answer **any two** questions. **Each** question carries **twelve** marks. (2×12=24)

- 7. a) What do you mean by sampling errors ? Explain the types of sampling errors.
b) Illustrate skewness with diagram given $Q_1 = 18, Q_3 = 35, \text{Mode} = 21, \text{Mean} = 18$, find the coefficient of skewness.
- 8. a) Is it important for the chosen samples to be representative of the population. Using the various methods of sampling, explain how representativeness can be achieved.
b) Elaborate on how a decision tree and the payoff-EMV concepts are useful in managerial decision making.
- 9. a) The following are the annual profits, in thousand of rupees, in a certain business :

Year	2001	2002	2003	2004	2005	2006	2007
Profits (Rs. 000)	60	72	75	65	80	85	95

- i) Use the method of Least Squares to fit a straight line to the above data.
- ii) Also make an estimate of the profits for the year 2009.
- b) Find the coefficient of correlation with the help of Karl Pearson's Method.

X	43	44	46	40	44	42	45	42	38	40	42	57
Y	29	31	19	18	19	27	27	29	41	30	26	10



SECTION - D

This is a **compulsory** question.

(1×15=15)

10. Calculate the consumer price index by the method of (a) Aggregate expenditure and (b) Family budget for the given data :

Commodity	Quantity in 2009	Price in 2009	Price in 2010
A	100	8	12.00
B	25	6	7.50
C	10	5	5.25
D	20	48	52.00
E	25	15	16.50
F	30	9	27.00