

First Semester M.B.A Degree Examinations

December 2015/ January 2016

(Directorate of Distance Education)

(Old Scheme/ New Scheme)

PAPER – MBA 140: QUANTITATIVE TECHNIQUES

Time: 3hrs.]

[Max. Marks: 75/ 80

SECTION – A

Answer the following, each question carries TWO marks:

5 x 2 = 10 Marks

1. a) What is a linear function?
- b) Define median.
- c) What do you mean by positive correlation?
- d) What is cluster sampling?
- e) Define adjoint of matrix.

SECTION – B

Answer any FIVE of the following, Each question carries SIX marks:

5 x 6 = 30 Marks

2. Explain the role of mathematics and statistics in business decision.
3. Explain Poisson Distribution with an example.
4. If $y = (3x^2 - 2)^5 (\sqrt{3x^2 - 1})$, find $\frac{dy}{dx}$
5. Compute Karl Pearson's correlation coefficient and interpret the answer.

Supply: 100 200 300 500 1000 900 850 660 800

Price: 1000 2250 3650 6000 1100 1050 900 790 860

6. The following table gives the distribution of 100 accidents during seven days of the week in a given month. During the particular month there are 5 Mondays, Tuesday and Wednesdays and only 4 each of the other days. Calculate the average number of accidents per day.

Days	No of Accidents	Days	No of Accidents
Sunday	26	Thursday	8
Monday	16	Friday	10
Tuesday	12	Saturday	12
Wednesday	10		

Contd.....2

7. The profit as a function of the selling price x is given by $p = 36000x - 6000x^2$. At what price, is the profit a maximum?

SECTION – C

(10 + 10 + 15 = 35)

Answer the following question. Question No.8 and 9 carries TEN marks each.
Question No.10 carries FIFTEEN marks:

8. a) Discuss normal distribution in detail.

OR

- b) From the following data given below, find

- The two regression coefficients
- The two regression equations
- The most likely marks in statistics when marks in economics are 30.

Marks in Economics	25	28	35	32	31	36	29	38	34	32
Marks in Statistics	43	46	49	41	36	32	31	30	33	39

9. a) Elaborate the need for sampling and differentiate between probabilistic and non-probabilistic sampling techniques.

OR

- b) If $A = \begin{bmatrix} 1 & 0 & 0 \\ 4 & 2 & 3 \\ 2 & 0 & 1 \end{bmatrix}$ find $A^2 - A - I$.

10. Calculate Fisher's price index from the following data and check whether time reverse test and factor reverse test are satisfied:

Commodity	1990		1995	
	Price (R₹)	Quantity (R₹)	Price (R₹)	Quantity (R₹)
A	32	50	30	50
B	30	35	25	40
C	16	55	18	50

SECTION – D

(Compulsory for New Scheme Students)

Answer the following question, which carries FIVE marks:

1 x 5 = 05 Marks

11. a) List out and explain the components of time series.

OR

- b) The mean weight of 15 wrestlers is 110 kgs. The mean weight of 5 of them is 100 kgs and another 5 is 125 kgs, what is the mean weight of the remainder?

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