

(6 pages)

S.No. 5498 S

P 8 MBA 3

(For candidates admitted from 2008–2009 onwards)

M.B.A. DEGREE EXAMINATION, FEBRUARY 2015.

Business Administration

MATHEMATICS AND STATISTICS

Time : Three hours

Maximum : 75 marks

SECTION A — (5 × 5 = 25)

Answer ALL questions.

1. (a) Explain addition theorem in probability.

Or

- (b) A diet conscious housewife wishes to ensure certain minimum intake of vitamins A, B and C for the family. The minimum daily requirements are A 30, B 20 and C 16 units. For the supply of these three vitamins, the housewife relies on two fresh foods. The first one provides 7, 5 and 2 units of the three vitamins per gram respectively and the second one provides 2, 4 and 8 units of the

three vitamins per gram respectively. The first food costs Rs.3 per gram and the second one Rs.2 per gram. How many grams should the housewife buy to keep her food as low as possible. Formulate the above problem into an LPP.

2. (a) The probability that a particular contractor will get a building contract is $1/4$ and the probability of not getting a road contract is $2/3$. If the probability of getting at least one contract is $2/5$, find the probability that he will get either of the two contracts.

Or

- (b) Explain the applications of functions.

3. (a) From the following, find the mode value :

X : 25 30 35 40 45 50 55

F : 7 11 17 15 14 10 11

Or

- (b) There are 200 mistakes pointed out from 100 pages typed by a typist. Find the probability that a page contains at least 4 mistakes. Assume Poisson Distribution.

4. (a) Explain the theory of Statistical Regularity.

Or

- (b) The no. of accidents per day was studied for 144 days in a town A and 100 days in town B. The following information was obtained :

	Town A	Town B
Mean no. of accidents	45	54
Standard Deviation	12	15

Is the difference between mean accidents of town A and town B significant?

5. (a) Explain the principles of least squares.

Or

- (b) In a correlation analysis between production and price of a commodity, the following constants were obtained :

	Production Index	Price Index
Arithmetic mean	110	98
Standard Deviation	12	5
Correlation co-efficient	-0.4	

Find X on Y.

Answer ALL questions.

6. (a) Solve the following LPP using Graphical Method :

$$\text{Maximise } z = 10x_1 + 8x_2$$

Subject to :

$$6x_1 + 2x_2 \leq 24$$

$$2x_1 + 2x_2 \leq 16$$

$$x_1, x_2 \geq 0.$$

Or

- (b) Explain Bays Theorems and its applications.

7. (a) Explain Cramer's Rule with an example.

Or

- (b) Find inverse of the following :

$$\begin{pmatrix} 1 & 0 & -4 \\ -2 & 2 & 5 \\ 3 & -1 & 2 \end{pmatrix}$$

