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S.No. 5498 C

P 8 MBA 3

(For candidates admitted from 2008-2009 onwards)

M.B.A. DEGREE EXAMINATION, NOVEMBER 2014.

Business Administration

MATHEMATICS AND STATISTICS

Time : Three hours

Maximum : 75 marks

PART A — (5 × 5 = 25)

Answer ALL the questions.

1. (a) A firm manufactures headache pills in two sizes A and B. Size A contains 2 grains of aspirin, 5 grains of bicarbonate and 1 grain of codeine. Size B contains 1 grain of aspirin, 8 grains of bicarbonate and 6 grains of codeine. It is found by users that it requires atleast 12 grains of aspirin, 74 grains of bicarbonate and 24 grains of codeine for providing immediate effect. It is required to determine the least number of pills a patient should take to get immediate relief. Formulate the problem into L.P.P.

Or

- (b) A problem in business statistics is given to five students A, B, C, D and E. Their chances of solving it are  $1/2$ ,  $1/3$ ,  $1/4$ ,  $1/5$  and  $1/6$ . What is the probability that the problem will be solved?

2. (a) Find the mode for the following distribution :

Class interval	0-10	10-20	20-30	30-40	40-50
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Frequency :	5	8	7	12	28
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Class interval	50-60	60-70	70-80
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Frequency :	20	10	10
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Or

- (b) The profits (in lakhs) earned by 100 companies during 2012-13 are shown below :

Profit	0-20	20-30	30-40	40-50	50-60
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No. of companies :	4	8	18	30	15
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Profit	60-70	70-80	80-90	90-100
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No. of companies :	10	8	7	4
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Compute mean and standard deviation.

3. (a) State the advantages of histogram.

Or

- (b) Write the requisites for an ideal measures of central tendency.

4. (a) Calculate the correlation coefficient for the following heights (in inches) of Fathers (X) and their Sons (Y) :

X: 65 66 67 67 68 69 70 72

Y: 67 68 65 68 72 72 69 71

Or

- (b) Ten competitors in a musical test were ranked by the three judges A, B and C in the following order.

Rank by A: 1 6 5 10 3 2 4 9 7 8

Rank by B: 3 5 8 4 7 10 2 1 6 9

Rank by C: 6 4 9 8 1 2 3 10 5 7

Use rank correlation to discuss which pair of judges have the common taste in beauty.

5. (a) Explain and illustrate Binomial distribution.

Or

- (b) Explain and illustrate of normal distribution.

PART B — (5 × 10 = 50)

Answer ALL the questions.

6. (a) Solve the L.P.P, Graphically

Maximize :  $Z = 3x_1 + 4x_2$

Subject to  $4x_1 + 2x_2 \leq 80$

$2x_1 + 5x_2 \leq 180,$

$x_1, x_2 \geq 0.$

Or

- (b) Solve the above using Cramer's rule :

$5x + 3y = 65$

$2y - z = 11$

$3x + 4z = 57.$

7. (a) Obtain the rank correlation for the following data :

X: 68 64 75 50 64 80

Y: 62 58 68 45 81 60

X: 75 40 55 64

Y: 68 48 50 70

Or

- (b) Find inverse of the following :

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

