(Following Paper ID and Roll No. to be filled in your Answer Book.

PAPER ID : 9104/ 9304   Roll No. ☐☐☐☐☐☐☐☐☐☐

Int. LLB Examination 2013-2014

(First Semester)

QUANTITATIVE ANALYSIS AND BUSINESS MATHEMATIS

Time : 3 Hours]   *[Maximum Marks : 100*

Note :—   (i)   Attempt all sections.

   (ii)   Section A carries 20 marks, section B carries 30 marks and section C carries 50 marks.

SECTION – A

1.   Fill in the blanks. All parts are compulsory : $20 \times 1 = 20$

   (a)   If $A \subseteq B$, then $A \cap B =$ ....

   (b)   If $A = \begin{bmatrix} 1 & 0 \\ 2 & 3 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 1 \\ 4 & 2 \end{bmatrix}$, then $A + B =$

   ....

   (c)   Skewness is defined as departure from ....

   (d)   If mean > mode, then distribution is .... skewed.

   (e)   If $\beta_2 = 3$, then distribution curve is ....

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(f)　If correlation is negative perfect, then $r =$ ....

(g)　If $8x - 10y = 68$ is line of regression of y on x, then its regression coefficient is ....

(h)　If standard deviation of data is 2, then its variance is equal to ....

(i)　Standard deviation is positive .... of variance.

(j)　If a, b, c are in arithmetic progression, then $a + c =$ ....

(k)　In Poisson distribution mean .... variance.

(l)　If p and q are probabilities of success and failure of an even, then $p + q =$ ....

(m)　If A and B are independent events, then $P(A \cap B) =$ ....

(n)　The median of numbers 4, 10, 7, 15, 7, 3, 5, 3, 7 is ....

(o)　If first term and common ratio of a G. P. are equal to 1, then 9th term is ....

(p)　In L. P. P. the objective function and constrants are ....

(q)　For the regression line $y = a + bx$, (which is the line of regression of y on x) the regression coefficient and slope are ....

(r) If universe of a matrix exists, then number of rows and number of columns in the matrix are ....

(s) Histogram consists of rectangles erected with bases equal to length of .... of frequency distribution.

(t) A frequency curve is a smooth shape of frequency ....

SECTION – B

Note :– Answer any three questions out of five. $3 \times 10 = 30$

2. Prove that :

 (a) $A \cup B = B \cup A$

 (b) $A \cap B = B \cap A$

3. Draw the frequency polygon from the following data :

Classes	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	6	12	16	18	8	4

4. Find the arithmetic mean of the following data :

Classes	10-20	20-40	40-70	70-120	120-200
Frequency	4	10	26	8	2

5. Write short note on linear programming.

6. What is the probability that a leap year selected at random contains 53 Sunday?

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SECTION – C

Note :– All questions are compulsory.   12½×4=50

7. (a) Define:

(i) Mean

(ii) Median

(iii) Mode

OR

(b) If A = {2, 3, 4, 5}, B = {4, 5, 6, 7} and C = {2, 6, 7} then find:

(i) A ∪ (B ∩ C)

(ii) A ∪ B

(iii) A ∪ C

(iv) A – B

(v) B – A

8. (a) Find the inverse of the matrix :

$$\begin{bmatrix} 1 & 2 & 3 \\ 1 & 3 & 5 \\ 1 & 5 & 12 \end{bmatrix}$$

OR

(b) Explain binomial distribution and Poisson distribution.

9. (a) If Q_1, Q_2 and Q_3 of a distribution are 97.85, 111.6 and 123.44. Find the coefficient of skewness. Also comment about the distribution curve.

OR

  (b) Explain arithmetic progression, geometric progression and harmonic progression.

10. (a) Define coefficient of correlation and rank correlation.

OR

  (b) Out of 500 car owners investigated, 400 owned Fiat cars and 200 owned Ambassador cars and 50 owned both Fiat and Ambassador cars. Is this data correct?

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