I Semester M.B.A. Examination, August 2011
QUANTITATIVE TECHNIQUES

Time : 3 Hours   Max. Marks : 75

PART – A

Answer **any five** :   **(5×5=25)**

1. What are quantitative techniques ? How do you explain sampling techniques in research with reference ?

2. What is binomial theorem ?

3. Explain Index numbers.

4. Write the difference between correlation and regression.

5. Compare and contrast between trend component and seasonal component of a time series.

6. Write down the different types of errors of test of significance.

PART – B

Answer **any five** :   **(5×10=50)**

7. Explain the term Additive Law and Multiplicative Law of Probability. Write the difference between them with example.

8. In a class of 120 students numbered 1 to 120, all even numbered students opt for Physics, whose numbers are divisible by 5 opt for Chemistry and those whose numbers are divisible by 7 opt for Math. How many opt for none of the three subjects ?

9. In a class of 40 students, 12 enrolled for both English and German. 22 enrolled for German. If the students of the class enrolled for at least one of the two subjects, then how many students enrolled for only English and not German ?

P.T.O.

10. Consider the following matrices where the subscript denotes the order of the matrix :

    $\underline{A}_{45} = (4 \times 5)$ $\underline{B}_{35} = (3 \times 5)$ $\underline{C}_{33} = (3 \times 3)$ $\underline{D}_{53} = (5 \times 3)$ $\underline{E}_{35} = (3 \times 5)$

    State whether or not the following operations are valid or invalid and if so why :

    a) $\underline{A}\,\underline{B}$

    b) $\underline{D}(\underline{B} + \underline{E})$

    c) $\underline{B}\,\underline{D} + \underline{C}$

    d) $\underline{C}(\underline{E}\,\underline{B})$

    e) $\underline{B}\,\underline{D} - \underline{A}$

    f) $\underline{A}(\underline{D}\,\underline{E})$

11. Answer the following with justification :

    a) What is the matrix equivalent of the number 1 ?

    b) Is matrix multiplication associative ?

    c) Does a matrix have a multiplicative inverse ?

12. Use mathematical induction to prove that

    $1 + 2 + 3 + ... + n = n(n + 1)/2$

    for all positive integers n.

13. Prove that $3^n > n^2$ for $n = 1$, $n = 2$ and use the mathematical induction to prove that $3^n > n^2$ for n a positive integer greater than 2.

14. What is relations ? Give the properties of relations.

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