SN – 362

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I Semester B.B.M. Examination, November/December 2013
(New Syllabus) (Semester Scheme)
(2012-13 and Onwards)
Business Management
Paper – 1.5 : QUANTITATIVE METHODS FOR BUSINESS – I

Time : 3 Hours Max. Marks : 100

Instructions : *Answer should be written in* ***English****.* ***All*** *the rough work must be shown on the* ***right*** *hand margin.*

SECTION – A

Answer **any eight** of the following sub-questions. **Each** sub-question carries **two** marks : **(2×8=16)**

1. a) Find LCM of 16, 24 and 36.

   b) Solve for x, $2x + 4 = 46$.

   c) The first term of an A.P. is 6 and the common difference is 2. Find the 15^{th} term.

   d) What is Geometric Progression ?

   e) If $B = \begin{bmatrix} 2 & -1 \\ 3 & 2 \end{bmatrix}$ find B^2.

   f) Calculate the rate of interest at which ₹ 750 will amounts to ₹ 825 in 5 years.

   g) What is annuity ?

   h) What is Banker discount ?

   i) Find the third proportional to ax, ax^2.

   j) What principal invested today will amount to ₹ 1,630.80 in 4 years at 13% p.a. compound interest ?

P.T.O.

SECTION – B

Answer **any three** of the following. **Each** question carries **eight** marks : **(8×3=24)**

2. Solve for x under formula method $9x^2 - 3x - 2 = 0$.

3. The first and the last element of G.P. are respectively 3 and 768 and the sum is 1533. Find the common ratio and the number of terms.

4. If $A = \begin{bmatrix} 2 & 3 & 4 \\ -3 & 0 & 2 \end{bmatrix}$, $B = \begin{bmatrix} 3 & -4 & -5 \\ 1 & 2 & 1 \end{bmatrix}$ and $C = \begin{bmatrix} 5 & -1 & 2 \\ 7 & 0 & 3 \end{bmatrix}$

   Find matrix 'X' such that $2A + 3B - X = C$.

5. Two quantities are in the ratio of 3 : 4, if 5 is added to each of the two terms, the new ratio obtained is 4 : 5. Find the two quantities.

SECTION – C

Answer question no. **10** and **any three** of the remaining questions. **Each** question carries **fifteen** marks : **(15×4=60)**

6. a) Find the co-factors of the elements of matrix $\begin{bmatrix} 2 & 1 & -3 \\ 3 & -1 & 2 \\ 2 & -1 & 1 \end{bmatrix}$.

   b) A bill for ₹ 2,920 was drawn on September 11th for three months after the date and was discounted at 16% p.a. for ₹ 2,875.20. On what date the bill was discounted ? **(8+7)**

7. a) Two years ago a man was six times as old as his son. In 18 years he was twice as old as his son. Determine their present ages.

   b) The sum of four numbers which are in A.P. is 32 and the product of its extremes is 55. Find the numbers. **(8+7)**

8. a) Find the difference between compound and simple interest on ₹ 5,000 invested for 4 years at 8% p.a.

   b) There are two families A and B. There are two men, three women and one child in family 'A' and a man, a woman and two children in family 'B'. The daily intake of calories as recommended for men 2400, women 1900 and children 1800. For protein intake men 55 grams, women 45 grams and children 33 grams. Using matrices, calculate the daily total requirement of calories and protein for each of the two families. **(7+8)**

9. a) In what time will a sum of ₹ 500 becomes ₹ 975 at 6% p.a ? Compound interest payable half yearly.

   b) A sum of ₹ 312 divided among four persons, A, B, C and D, the amount received by them in G.P. If A and D together received ₹ 252, find the amount received by each person separately. **(7+8)**

10. a) Solve by elimination method :

   i) $x + y = 15$

   $3x - y = 21$

   ii) $2x + 3y = 42$

   $5x - y = 20$.

   b) If $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$ show that $A^2 - 4A - 5I = 0$. **(8+7)**