SN – 368

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I Semester B.B.M. Examination, Nov./Dec. 2013
(2011-12 only) (Repeaters)
BUSINESS MANAGEMENT
Paper – 1.6 : Business Mathematics

Time : 3 Hours Max. Marks : 100

Instructions : *a) Answers should be written in* ***English****.*

b) ***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. **(8×2=16)**

1. a) Find the value of ${}^{8}C_{5}$ and ${}^{9}C_{6}$.

b) What is Deferred Annuity ?

c) Find the cost price of an article which is sold at a profit of 10% for Rs. 1,650.

d) What is Null Matrix ?

e) How much money should be deposited today in order to earn an annual income of Rs. 7,000 in perpetuity at 14% p.a. interest rate ?

f) Find the 6^{th} term of GP 2, 6, 18, ...

g) What is permutation ?

h) Find the value of x if $\frac{x+2}{x-1}=\frac{5}{2}$.

i) Find the LCM of 48, 72 and 108.

j) What are Even Numbers ?

P.T.O.

SECTION – B

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

2. At what rate of compound interest per annum will a sum of Rs. 62,500 amount to Rs. 67,600 after 2 years ?

3. If $A = \begin{bmatrix} 0 & 2 & 3 \\ 2 & 1 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 7 & 6 & 3 \\ 1 & 4 & 5 \end{bmatrix}$, find 2A + 4B.

4. Find the sum of all numbers between 200 and 560 which are divisible by 11.

5. Solve for x if $\frac{x+1}{2} - \frac{x-2}{3} = \frac{x+4}{5} + \frac{7}{15}$.

6. Find three numbers in Arithmetic Progression whose sum is 9 and product is 8.

SECTION – C

Answer **any four** of the following. **Each** question carries **fifteen** marks. **(4×15=60)**

7. a) Solve by Cramer's rule method.

$2x + 3y = 1$

$3x - y = -2$

b) If $A = \begin{bmatrix} 1 & 2 \\ 2 & 4 \\ 5 & 6 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & -2 & 5 \\ 2 & 4 & -6 \end{bmatrix}$ show that $(AB)' = B'A'$. **(8+7)**

8. a) The difference between SI and CI on a certain sum of money for 5 years at 10% p.a. is Rs. 600. Find the sum.

b) The sum of three numbers in GP is – 21 and their product is 125. Find the numbers. **(8+7)**

9. a) 30 kgs of commodity A and 25 kgs of commodity B costs Rs. 7,100. 25 kgs of commodity A and 13 kgs of commodity B costs Rs. 5,050. Find the cost of commodity A and B per kg.

   b) Solve :

   $3x + 3y = 12$

   $2x + 4y = 12$ by substitution method. **(8+7)**

10. a) 30 men work for 8 hours a day for 24 days to finish a work. In how many days, 18 men working for 10 hours a day will finish double the work ?

    b) The annual income of two persons is in the ratio of 8 : 5 and their annual expenditure in the ratio of 5 : 3. If they save Rs. 1,200 p.a. and Rs. 1,000 p.a., find their incomes. **(8+7)**

11. a) Find $\frac{dy}{dx}$ if $y = \frac{2x^3 - x^2 + x - 2}{x^2}$.

    b) Evaluate :

    $\lim_{x \to 3} \frac{x^2 - 5x + 6}{x^2 - 4x + 3}$.