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I Semester B.Com. Examination, November/December 2013
(2011-12 Only)
COMMERCE
Business Mathematics

Time : 3 Hours

Max. Marks : 100

Instructions : Answer should be written **completely** either in **Kannada** or in **English**.

SECTION – A

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

1. a) What is arithmetic progression ?
- b) What is common difference ?
- c) Define an equation.
- d) What do you mean by imaginary numbers ?
- e) Find the HCF of 495 and 675.
- f) What is sequence ?
- g) What is a scalar matrix ?
- h) If $A = \begin{bmatrix} 3 & 6 & 1 \\ 9 & -9 & 0 \end{bmatrix}$ $B = \begin{bmatrix} -5 & 3 & 0 \\ 0 & 2 & 0 \end{bmatrix}$ Find $A + B$.
- i) What is alternendo ?
- j) Find 30% of 1 hour 15 minutes.

SECTION – B

Answer **any 3** questions. **Each** question carries **8** marks.**(3×8=24)**

2. Solve by elimination method

$$2x + 3y = 5$$

$$3x + 5y = 8$$

3. The sum of 3 numbers in AP is 24 and their product is 440. Find the numbers.

4. If $A = \begin{bmatrix} 2 & 4 & 7 \\ 9 & 0 & -3 \\ -6 & -8 & -5 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 2 & 5 \\ 3 & 7 & 9 \\ 4 & -2 & -7 \end{bmatrix}$ Find $4A + 2B$.

P.T.O.



5. 5 carpenters can earn Rs. 360 in 6 days working 9 hours a day. How much 8 carpenters can earn in 12 days working 6 hours a day ?
6. A man lost 5% by selling an article for Rs. 28.50. For how much he should sell it to gain 10% ?

SECTION – C

Answer **any four** questions. **Each** question carries **15** marks. **(4×15=60)**

7. a) A bill for Rs. 12,700 drawn on 27th May for 4 months was discounted on July 19th at 4% p.a. Find
 - a) Bankers discount
 - b) True discount
 - c) Bankers gain and
 - d) How much the holder of the bill receives.
- b) Find the difference between simple interest and compound interest on Rs.30,000 in 3 years at 5% p.a.
8. a) Find 3 numbers in A.P. whose sum is 9 and the Product is 15.
- b) 8 men or 16 boys can do a work in 39 days. In how many days will 4 men and 18 boys do it ?
9. a) Solve the equation $\frac{2x - 7}{2x - 1} = \frac{x - 3}{x + 3}$
- b) Using Cramm's rule solve

$$6x + 5y = 2$$

$$4x - 3y = 14$$
10. a) The sum of 3 numbers in G.P. is 35 and their product is 1000. Find the numbers.
- b) If $A = \begin{bmatrix} 2 & -3 & 4 \\ 0 & 5 & 1 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 6 \\ -5 & 0 \\ 2 & -2 \end{bmatrix}$ and $C = \begin{bmatrix} 8 & -1 \\ 3 & 1 \\ 0 & 6 \end{bmatrix}$
 Show that $A(B + C) = AB + AC$.
11. a) Find the inverse Matrix $\begin{bmatrix} 2 & -4 \\ 3 & -2 \end{bmatrix}$
- b) A man gives 20% of his properties to his son. 50% of the remainder to his wife. 30% of the amount left to each of his two daughters and the balance for charity. If his properties are valued at Rs. 85,400. Find the amount received by each.