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## I Semester B.B.M. Examination, April/May 2021

(2012-13 and Onwards) (Repeaters)

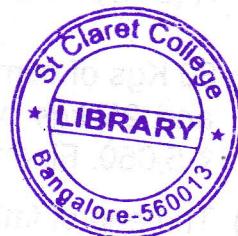
**BUSINESS MANAGEMENT****Paper – 1.5 : Quantitative Methods for Business – I**

Time : 3 Hours

Max. Marks : 100

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

1. Answer **any 8** of the following. **Each** question carries **2 marks**. **(8x2=16)**
- What is a real number ?
  - Find the HCF of 88, 60 and 36.
  - Give the general form of quadratic equation.
  - Form an equation whose roots are 7 and – 4.
  - What is a scalar matrix ? Give an example.
  - If  $A = \begin{bmatrix} 2 & 5 \\ -8 & 0 \end{bmatrix}$ ,  $B = \begin{bmatrix} -9 & 2 \\ 7 & -6 \end{bmatrix}$  find  $A + B$ .
  - What do you mean by geometric progression ?
  - Find the 15<sup>th</sup> term of AP 1, 6, ...
  - What is true discount ?
  - Find the fourth proportional to 4, 9, 12.

**SECTION – B**Answer **any 3** of the following. **Each** question carries **8 marks**.**(3x8=24)**

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

3. If  $A = \begin{bmatrix} 5 & 9 \\ 3 & 4 \end{bmatrix}$ ,  $B = \begin{bmatrix} 6 & -8 \\ -2 & 1 \end{bmatrix}$ . Prove that  $(AB)' = B'A'$ .



4. Two numbers are in the ratio 5 : 8. If 9 is added to each they are in the ratio 8 : 11. Find the numbers.
5. The 4<sup>th</sup> and 8<sup>th</sup> terms of a GP are 24 and 384 respectively. Find the 5<sup>th</sup> term.

## SECTION – C

Answer question No. 10 and any 3 of the remaining questions. Each question carries 15 marks.  $(4 \times 15 = 60)$

6. If  $2A + B = \begin{bmatrix} 4 & 3 \\ 6 & -2 \\ 1 & 0 \end{bmatrix}$ ,  $3A + 2B = \begin{bmatrix} 3 & -2 \\ -6 & 1 \\ 0 & -8 \end{bmatrix}$  find A and B.

7. a) Find the smallest number which, when divided by 12, 25 and 16 leaves 5 as remainder.
- 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  $A(B+C) = AB + AC$ .
8. a) 30 Kgs of commodity A and 26 Kgs of commodity B together cost ₹ 7,100 and 25 kgs of commodity A and 13 kgs of commodity B together cost ₹ 5,050. Find the cost price of each.
- b) The age of father is 4 times that of his son. Five years ago father was 7 times as old as his son. Find their present age.
9. a) On a bill of ₹ 20,750 due after 8 months at 6% p.a. find the :
- i) Present value,
  - ii) True discount,
  - iii) Banker's discount,
  - iv) Banker's gain.
- b) If 30 men working 8 hours a day can do a piece of work in 24 days, in how many days 18 men working 10 hours a day will finish double the work ?
10. a) The sum of three terms in AP is 21. Find the numbers if their product is 280.
- b) Find the difference between SI and CI on ₹ 3,000 in years at 3% p.a.