



II Semester B.Voc. (Retail Management) Examination, May/June 2018  
(CBCS)

(F+R) (2016 – 17 & Onwards)  
2.3 : MATHEMATICS FOR BUSINESS

Time : 3 Hours

Max. Marks : 70

*Instruction : Answer should be written in English only.*

SECTION – A

Answer any five of the following.

(5×2=10)

1. a) What is Unit Matrix ?
- b) What is quadratic equation ?
- c) Find the simple interest on Rs. 1,000 at 5% p.a. for 5 years.
- d) If  $a = 3$ ,  $r = 5$  find  $\frac{ar^2}{\sqrt{r^2}}$ .
- e) Simplify  $(a^3)^2 \div (a^2)^2$ .
- f) Solve  $2x + 3(3 - x) = x - 1$ .
- g) If  $a : b = 3 : 4$  find  $\frac{a+b}{b}$ .
- h) Simplify  $x^{-6} \times x^{+9}$ .

SECTION – B

Answer any three of the following. Each carries 6 marks.

(3×6=18)

2. Solve the following simultaneous equations using the method of cross multiplication.

$$2x + y = 5$$

$$x + 2y = 4$$

P.T.O.



3. Find the 7<sup>th</sup> and 11<sup>th</sup> terms of the series 1, 2, 4, 8 .....
4. Find the product of the two matrices A and B where

$$i) A = \begin{pmatrix} 1 & 3 \\ 2 & 1 \end{pmatrix}_{2 \times 2}, \quad B = \begin{pmatrix} 4 \\ -1 \end{pmatrix}_{2 \times 1}.$$

$$ii) A = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{pmatrix}_{3 \times 3}, \quad B = \begin{pmatrix} 1 & -2 \\ 3 & -4 \\ -5 & 6 \end{pmatrix}_{3 \times 2}.$$

5. Sum of how many terms of a series  $27 + 24 + 21 + \dots$  is 132 ?
6. Solve  $x^2 - 7x + 12 = 2$ .

## SECTION - C

Answer **any three** of the following. **Each** question carries **14** marks.

**(3×14=42)**

7. a) If  $A = \begin{pmatrix} 2 & 3 & -1 \\ -1 & 0 & 1 \end{pmatrix}$   $B = \begin{pmatrix} 2 & 3 & 5 \\ -1 & 3 & 4 \\ 2 & 1 & 0 \end{pmatrix}$  find  $(AB)'$  and  $B'A'$ .

b) Solve  $A = \begin{vmatrix} 1 & 1 & -1 \\ 3 & 2 & 3 \\ 2 & 7 & 4 \end{vmatrix}$ .

8. a) Solve the following using Cramer's rule

$$5x + 2y = 11$$

$$3x + 7y = 24$$

b) Find the inverse of  $A = \begin{bmatrix} 0 & 1 & 2 \\ 1 & 2 & 3 \\ 3 & 1 & 1 \end{bmatrix}$ .



9. a) Find the 15<sup>th</sup> term of the A.P. 3, - 3, -9, -15.....  
b) The 10<sup>th</sup> term of an A.P. is 23 and 32<sup>nd</sup> term is 67. Find the 20<sup>th</sup> term.
10. a) If  $A = \begin{bmatrix} 2 & 5 & 3 \\ 3 & 1 & 2 \\ 1 & 1 & -1 \end{bmatrix}$ . Verify  $AA^{-1} = I$ .  
b) If  $A = \begin{bmatrix} 3 & 5 \\ 2 & a \end{bmatrix}$ ,  $B = \begin{bmatrix} 4 & b \\ 2 & 9 \end{bmatrix}$  and  $C = \begin{bmatrix} 26 & a \\ 14 & 45 \end{bmatrix}$  find a and b, when  $2A + 5B = C$ .
11. a) Find the compound interest on Rs. 10,000 for 4 years at 5% p.a.  
b) A sum of Rs. 1,200 was lent out for 2 yrs. at simple interest. The lender got Rs. 1,536 in all. Find the rate of interest p.a.
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