ST. JOSEPH'S EVENING COLLEGE (AUTONOMOUS)

II SEMESTER B.COM EXAMINATIONS - APRIL 2019

BUSINESS MATHEMATICS

Duration: 2.5 Hours   **Max. Marks: 70**

SECTION A

Answer any EIGHT of the following questions.   **(8x2=16)**

1. What are rational numbers?

2. What is Scalar matrix? Give an example.

3. Find the 10th term of the A.P 1,3,5,7,9……..

4. Calculate the simple interest on Rs.1000 for 4 years at 5% p.a.

5. Solve for x, if (3x-2) (x+2) = 0

6. If $A = \begin{pmatrix} 3 & -4 \\ 2 & 4 \end{pmatrix}$ find AA^{I}

7. Find the HCF of 108 and 144.

8. What is quadratic equation?

9. What is Geometric progression?

10. What do you mean by banker's gain?

11. Give the meaning of Bills of exchange.

12. What is prime numbers?

SECTION B

Answer any THREE of the following questions.   **(3x8=24)**

13. Find the sum of the natural numbers from 1 to 100 excluding those divisible by 5.

14. Solve for x and y by substitution method 4x + 3y = 7 and 2x − y = 0

15. If $A = \begin{pmatrix} 1 & 4 & -2 \\ 5 & 3 & -2 \end{pmatrix} B = \begin{pmatrix} 2 & 2 & 4 \\ 3 & -1 & 1 \end{pmatrix}$ Prove that $(A − B)^{I} = A^{I} - B^{I}$

16. Find three numbers in GP whose sum is 13 and product is 27.

17. Find the difference between S.I and C.I on Rs.9000 for 5 years at 10%

SECTION C

Answer any TWO of the following questions.   **(2x15=30)**

18. A) Under Cramer's rule solve the following equation for x and y, 7x–3y= -23, 2x+7y=17

    B) An electronic device makes a beep after 60 sec. Another device makes a beep after every 62 seconds. They beeped together at 10AM. Find the time when they will next make a beep together at the earliest.

19. A) Determine the 1st term and the common difference of an AP whose 10th term and 16th terms are 29 and 47 respectively.

    B) Find the 15th term of the GP 1,3,9,27,81…….

20. A) If $A = \begin{pmatrix} 1 & 3 \\ -2 & 4 \end{pmatrix} B = \begin{pmatrix} 3 & -2 \\ 5 & 4 \end{pmatrix} C = \begin{pmatrix} 1 & 0 \\ -2 & 4 \end{pmatrix}$ Verify that A(B+C) = AB+AC

    B) Find the present value, Banker's Discount, true Discount and Banker's gain on a bill of Rs.20,000 due on 5 months at 8% p.a.

21. A) Find the compound interest of Rs. 9600 at 12% p.a. in 4 years payable half yearly.

    B) Solve the equation by using the formula. $2x^2 – 10x + 13 = 0$