ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE-27
BBA – I SEMESTER
SEMESTER EXAMINATION: OCTOBER 2019
BBA 1319 - QUANTITATIVE TECHNIQUES

Time- 2 1/2 hrs   Max marks -70

This paper contains two printed pages and 4 parts

SECTION A

I. Answer **any five** of the following questions   **2X5=10marks**

1. A number increased by 40% gives 847 . Find the number.
2. Find the effective rate of interest if Rs.1200 lent at 12% p.a interest payable half yearly.
3. Solve: 3x + y = 20 ; x + y = 6
4. Find the Marked price of an article sold at Rs5608 after a discount of 15%.
5. Find the LCM of 200, 150 and 120
6. What is the 20th term of the AP: 102,106,110….?

SECTION B

II. Answer **any three** of the following questions   **5x3=15marks**

7. Mia borrowed a sum Rs.40000 in total from Pia and Tia. Pia charged an interest rate of 12% and Tia an interest rate of 14.5%.Both are calculated on the basis of S.I. The total interest paid for 3 years is Rs.15525. How much did Mia borrow from Pia and Tia?

8. Prove that X+(Y+Z) = (X+Y)+Z

$$X = \begin{bmatrix} 2 & 3 & 4 \\ -3 & 0 & 2 \end{bmatrix} \quad Y = \begin{bmatrix} 3 & -4 & -5 \\ 1 & 2 & 1 \end{bmatrix} \quad Z = \begin{bmatrix} 5 & -1 & -2 \\ 7 & 0 & 3 \end{bmatrix}$$

9. a) Find the mean proportional to 50 and 2
   b) Find the third proportional to 25 and 50
   c) Find the value of x if: (x-3):(5+2x):: 4:7
   d) Find the ratio of 4 days to 16 hours

10. a) A team of football enthusiasts wants to establish an endowment football tournament in Bangalore city. This tournament is to be conducted on an annual basis and the winning team will win a cash prize. If the annual cash prize is Rs.15000, how much should be deposited today at 4%p.a rate of interest.

    b) Insert 5 arithmetic means between 3 and 27.

                                                          (2+3)

SECTION C

III. Answer **any TWO** of the following questions   **15X2=30marks**

11. a) A machine costing Rs.50000 is depreciated at a rate of 10% for the first 4 years, 12% for the next two years and at 14% thereafter. Calculate the value of the asset after 10 years

b) If Ram and Sham can do a work in 12 days , and Sham and Pam can do the work in 20 days and Ram and Pam take 15 days . How long will they take to do the work together? Also find how long will Pam take to do it alone?

(7+8)

12. a) How many terms are there in an arithmetic progression whose first and fifth terms are -14 and 2 respectively and the sum of the terms is 40.
b) Find the sum to nth terms of the series 5+ 55+555……. to n terms

(8+7)

13. a) Andy sells a bureau to Billy at a profit of 20%. Billy in turn sells it to Candy at a 10% loss. Candy sells the sofa-set to Dan at a 5% profit. If Dan purchased it for Rs.1,70,100, find out Andy's cost price.

b) If a:b = 2:3, b:c = 15:6 and c:d = 7:4, Find a:b:c:d and a:c.

c) Solve: $3x^2 + 4x = 15$

(7+5+3)

SECTION D

IV. Compulsory question 15x1= 15

14. a) **Solve using Cramer's Rule**
Ms. X goes to the grocery store to buy fruits. She finds out that nine apples and fifteen oranges costs Rs.240 and eighteen apples and fifteen oranges cost Rs.330. Using Cramer's Rule, find out the cost of three apples and four oranges.

b) A = $\begin{bmatrix} 1 & 7 \\ 3 & 4 \end{bmatrix}$ and B = $\begin{bmatrix} 2 & 8 \\ 5 & 6 \end{bmatrix}$. Find: (i) AB   (ii) BA
c) Mr.Rahul took a loan of Rs.30,000 from a bank at 8% p.a repayable in 7 equal installments, what is the value of each installment?

(5+5+5)

BBA1319_A_19