



Register Number:

Date: 13-01-2021

ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE-27
BBA - I SEMESTER
SEMESTER EXAMINATION: JANUARY 2021
BBA1319 – QUANTITATIVE TECHNIQUES I

Time- 2 1/2 hrs

Max Marks-70

This paper contains 3 printed pages and four parts

SECTION A

Answer any five of the following questions. Each question carries two marks.
(5x2=10)

1. Find the least length of a rope which can be cut into whole number of pieces of lengths 45 cm, 75 cm and 81 cm.
2. What must be added to each term of the ratio 2:3, so that it may become equal to 4:5?
3. If A matrix = $\begin{pmatrix} 0 & 2 & 3 \\ 2 & 1 & 4 \end{pmatrix}$ and B matrix = $\begin{pmatrix} 7 & 6 & 3 \\ 1 & 4 & 5 \end{pmatrix}$. Find $5B - 3A$.
4. Find the 3rd term of arithmetic progression 1, 3 and 5.
5. A number exceeds 25% of itself by 60. Find the number.
6. Calculate the amount of annuity of Rs.5000 for 15 years. If rate of interest is 15%.

SECTION B

Answer any three of the following questions. Each question carries five marks.
(3x5=15)

7. If 35 men can reap a field in 8 days; in how many days can 20 men reap the same field?
8. Ramesh borrowed Rs7000 from a bank on simple interest for a period of 5 years. He returned Rs.3000 to the bank at the end of three years and Rs.5450 at the end of the five and closed the account. Find the rate of interest per annum.
9. Solve the equation using Formula method:
 $x^2 - 4x = 8$
10. The 3rd term of a Geometric progression is 24 and the 6th term is 192. Find the geometric progression. Also find the 10th term.

SECTION C

Answer any two of the following questions. Each question carries fifteen marks.
(2x15=30)

11.

- A. Find the rate of Interest for an investment of Rs 12000 which becomes Rs23105 compounded annually at the end of 5 years. (5 marks)
- B. Nisha is 15 years elder to Romi. If 5 years ago, Nisha was 3 times as old as Romi, then find Nisha's present age. (5 marks)

12.

- A. Which term of the geometric progression: (5 marks)
3, -1, 1/3, -1/9is -1/729?
- B. Find the effective annual rate of interest for the following: (5 marks)
- 8.8% compounded quarterly
 - 12% compounded weekly.
 - 5.5% compounded annually
- C. A man sold two articles for Rs.3000 each, gaining 20% on one article and loosing 20% on the other article. Find his gain or loss percentage on the whole. (5 marks)

13.

- A. LIC offers a Jeevan Bheema Scheme , If the lumpsum is paid at the beginning of the first year at Rs 20000 at 14%p.a for a total of 12 years life of the annuitant .How much should be deposited ? (5 marks)
- B. Solve using Cramer's rule: (5 marks)
 $3x + 4y = 5$
 $x - y = -3$
- C. There are two numbers such that the sum of the first & three times the second is 53. The difference between four times the first and two times the second is 2. Find the numbers. (5 marks)

SECTION D

14. Answer all of the following compulsory questions. Each question carries 5 marks. (3x5=15 marks)

A. Verify whether $(AB)^T = B^T A^T$

(10 marks)

$$\text{If } A = \begin{bmatrix} 7 & 8 & 9 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix} \text{ and } B = \begin{bmatrix} 1 & 3 & 5 \\ 6 & 7 & 8 \\ 12 & 13 & 14 \end{bmatrix}$$

B. A man is employed in a company for a salary of Rs. 20,000 per month and is promised an increment of Rs.500 per month. Find the total amount he would receive in 12 years. (5 marks)

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