

Autonomous, Bengaluru

UG END SEMESTER EXAMINATION-NOVEMBER 2025

BBA - I SEMESTER

BM 1424: QUANTITATIVE ANALYSIS FOR BUSINESS

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TIME: 3 hours

MAX. MARKS: 80

This paper contains THREE printed pages and FOUR parts

Instructions:

1. Verify and ensure that the question paper is completely printed.
2. Any discrepancies or questions about the exam paper must be reported to the COE within 1 hour after the examination.
3. Students must check the course title and course code before answering the questions.

PART-A

Answer TEN questions. Each answer carries ONE mark.

[10 x 1 = 10]

1. The reciprocal ratio of 4 : 5 is:

- a) $\sqrt{4} : \sqrt{5}$ b) $4/1 : 5/1$ c) 5 : 4 d) $4^2 : 5^2$

2. The 2nd proportional of the terms 4, 9 and 36 is:

- a) 8 (b) 18 c) 16 d) 40

3. The value of 'X' in $2x + 4 = 10$ is:

- a) 4 b) 7 c) 14 d) 3

4. An equation in which the highest power of the given variable is 1.

- a) Quadratic b) Binomial c) Polynomial d) Linear

5. Value of $0!$

- a) 1 b) $(n-0)!$ c) $n!$ d) 0

6. When ${}^nC_3 = {}^nC_8$, then the value of n ?

- a) $8!3!$ b) $8/3$ c) 24 d) 11



7. $\begin{bmatrix} 2 & 6 \\ 0 & 7 \end{bmatrix} + \begin{bmatrix} y & 0 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 5 & 6 \\ 1 & 9 \end{bmatrix}$, Find y?

- a) 2 b) 8 c) 6 d) 3

8. Matrix $A = \begin{bmatrix} 2 & 0 \\ 0 & 1 \end{bmatrix}$ is a type of

- a) Diagonal matrix b) Unit matrix c) Row matrix d) Null matrix

9. The full form of EMI is:

- a) Equated Minimum Instalments b) Expected Monthly Instalments
c) Equated Monthly Instalments d) Expected Minimum Instalments

10. A businessman borrowed Rs.62,500 and paid Rs.67,600 in full settlement after two years. The rate of compound interest is approximately:

- a) 4 % b) 5% c) 2% d) 3%

PART-B

Answer any **THREE** questions. Each answer carries **EIGHT** marks

[3 x 8 = 24]

11. a) If 7 men earn Rs.400 in 5 days, what will 14 men earn in 15 days? (4 marks)
b) Two numbers are in the ratio of 3 : 5. If 9 is subtracted from each number, the new numbers are in the ratio of 12:23. Find the smaller number? (4 marks)

12. Verify De-Morgan's first Law for the given sets.

Set $A = \{a, b, c, e, g\}$, Set $B = \{a, c, d, f\}$ and $U = \{a, b, c, d, e, f, g, h\}$

13. Matrix $A = \begin{bmatrix} 2 & -1 \\ 6 & 3 \end{bmatrix}$ and Matrix $B = \begin{bmatrix} 5 & 3 \\ 4 & 7 \end{bmatrix}$ Find $2AB$?

14. Find the number of permutations of the letters of the word 'STATISTICS'? In how many of these words do all the S's come together and how many of these words start with letter 'T'?

15. A debenture is available at a market price of Rs.1000 with Rs.80 as the interest per annum for a period of 3 years. The maturity value is Rs.1120. Determine the present value if the debenture capitalization rate is a) 10% b) 8%.

PART – C

Answer any THREE questions. Each answer carries TWELVE marks.

[3 x 12 = 36]

16. a) A table is sold by the producer to a retailer by allowing 20% discount on the invoice price. The retailer sells it at 10% below the marked price. If a customer pays Rs.900 for the product, what percentage of profit made by the retailer? (6 marks)
b) Salaries of Arnav and Erin are in the ratio 2 : 3. If the salary of each is increased by Rs. 4000, the new ratio becomes 40 : 54 . What is Erin's new salary? (6 marks)
17. Dealer A sells 3 pounds of coffee and 8 pounds of tea for Rs.610 . Dealer B sells 5 pounds of coffee and 6 pounds of tea for Rs. 792. Find the value of 9 pounds of coffee and 10 pounds of tea?
18. A committee of 5 persons is to be constituted from a group of 5 women and 7 men. In how many ways can the committee be selected if it would consist of at least 3 men?
19. Solve the following linear equations using Cramer's rule.
 $12x+3y=15$
 $2x-3y=13$
20. a) Kashyap invests Rs.12800 for three years at the rate of 10% per annum compound interest. Find: (6 marks)
(i) the sum due to Ramesh at the end of the first year.
(ii) the interest he earns for the second year.
(iii) the total amount due to him at the end of three years.
b) Find the present value of an annuity of Rs. 4,000 per annum for 10 years yielding compound interest at 10% per annum. (6 marks)

PART - D

Answer the following question. Each answer carries TEN marks.

[1 x 10 = 10]

21. Mr and Mrs Calvin consider to go for a home loan to purchase their new house. They are evaluating different loan options to determine the most suitable financing plan based on their budget and financial goals. They have received a loan offer from AXIS bank.

Loan Offers:

- Loan Amount: Rs.30,00,000
- Interest Rate: 8 % per annum (fixed)
- Loan Tenure: 20 years

Questions to be answered:

- Calculate the EMI payable for the loan offer.
- Determine the total amount paid over the life of the loan.
- Create an amortization schedule for the first 3 months. Provide the breakdown of the principal and interest components for each monthly instalment.
