

42244

IV SEMESTER BBA EXAMINATION NJULY/AUGUST 2023

SCHEME: SEMESTER – CBCS

BBA

QUANTITATIVE TECHNIQUES

Time: 03 Hours

Max Marks: 80

Instructions to candidate: Answer all parts.

PART - A

I Answer any Two questions. 15 marks each.

2x15=30

- 1) (a) Simplify: $\frac{2^{m+1} \times 3^{2m-n} \times 5^{m+n+1} \times 6^n \times 12^{m+n}}{18^m \times 10^{n+1} \times 15^m \times 6^n}$ 11
- (b) State 4 rules of logarithms 4
- 2) (a) A bill was drawn on 14th April 2019 at 8 months. It was discounted on 24th July 2019 at 5% p.a. If banker's gain is Rs 3. Find: 8
- (a) Face value of bill.
- (b) Banker's discount
- (c) True discount
- (b) What is the compound interest on Rs. 50,000 at 3% p.a. for a period of 3 years if:
- (i) the interest is payable half yearly.
- (ii) the interest is payable quarterly. 7
- 3) (a) The sum of the 5th term and 12th term is 81 and the sum of the 8th term and 15th term is 111. Find the 25th term. 8
- (b) Find the 3 numbers in GP whose sum is 62 and their product is 1000. 7
- 4) (a) If 17 men build a bridge of 42 feet long, 5 feet thick, and 23 feet height in 20 days by working 13 hours a day. In how many days of 17 hours, 47 men could build a bridge of 420 feet long, 7 feet thick and 20 feet height. 7
- (b) If
- $$A = \begin{vmatrix} 3 & 9 & 9 \\ 9 & 3 & 9 \\ 9 & 9 & 3 \end{vmatrix}$$
- Prove that $A^2 - 8A - 20I = 0$ 8

PTO

PART - B

II Answer any three questions. 10 marks each.

3x10=30

- 5) Solve the equations by using Cramer's rule: 10
 $2x+3y-5z=9$
 $3x-7y+8z=10$
 $5x+2y-10z=11$
- 6) From 6 men and 4 women, a committee of 4 is to be formed. In how many ways can this be done, so that, the committee contains: 10
 (a) Exactly 2 women
 (b) At least 2 women
 (c) At most 3 women
- 7) (a) If $abc=1$, show that 5

$$\frac{1}{\log_a x} + \frac{1}{\log_b x} + \frac{1}{\log_c x} = 0$$

 (b) Given: 5
 Simple interest = Rs. 400
 Principle amount = Rs. 10,000
 Rate of interest = 2%
 Find time in years = ?
- 8) 9 persons sit in a row of 9 chairs. Find the total number of seating arrangements if, 10
 (a) 3 persons a, b and c sit together in a particular order.
 (b) 3 persons a, b and c sit together in any order.
 (c) a and c occupies the end seats.
 (d) b always occupies the middle seat.
- 9) Two posts were offered to a person. In one post the starting salary was Rs. 5000/month and annual increment was Rs. 250/month. In the other post, the salary commenced at 10
 Rs. 3500/month, which post would give him more earnings in the first 20 years of services.

PART - C

III Answer any four questions. 5 marks each.

4x5=20

- 10) The monthly salary of 2 persons are in the ratio of 6:10. If each receives an increase of Rs. 400 in salary then the ratio is altered to 22:30. Find the respective salaries.
- 11) If $P = \begin{vmatrix} 4 & 6 & -8 \\ 3 & 7 & -3 \end{vmatrix}$ and $Q = \begin{vmatrix} 7 & -4 & 6 \\ 3 & -6 & -10 \end{vmatrix}$
 Find : $2P+3Q$
 $3P-2Q$
- 12) The 12th term of an AP is 35 and 16th term is 47. Find the common difference and the first term. Also find 25th term.
- 13) Find the sum of the series 10, 5, 0, -5,, -95.
- 14) Divide Rs. 1060 among A, B, and C, so that A:B=6:2 and B:C=4:8
- 15) Prove that $\frac{\log_3 64}{\log_9 8} = 4$

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