

(FOR THE CANDIDATES ADMITTED
DURING THE ACADEMIC YEAR 2024 ONLY)

24UCF3A1

REG.NO. :

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI
END-OF-SEMESTER EXAMINATIONS: NOVEMBER-2025
B.Com-FINANCE **MAXIMUM MARKS: 75**
SEMESTER: III **TIME: 3 HOURS**

PART - III**BUSINESS MATHEMATICS****SECTION – A****(10 X 1 = 10 MARKS)****ANSWER THE FOLLOWING QUESTIONS.****MULTIPLE CHOICE QUESTIONS.****(K1)**

1. The difference between _____ is true discount
(a) Banker's discounts and true discount (b) face value and present value
(c) face value and exchange value (d) actual rate and due date
2. If the successive terms increase or decrease by a constant factor, the series is called _____
(a) Arithmetic series (b) Harmonic series (c) infinite series (d) Geometric series
3. The rank of null matrix is _____.
(a) 1 (b) 0 (c) ∞ (d) n
4. $d(x^2 - 3x + 2) =$ _____
(a) $2x^3 - 3$ (b) $2x + 2$ (c) $-3x^2 + 2x^3$ (d) $2x - 3$
5. $\int dx =$ _____
(a) $x + c$ (b) x (c) 0 (d) 1

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES.**(K2)**

6. Find the simple interest on the sum of Rs 6,000 at 10% p.a for 3 years.
7. Define equal set.
8. Define singular matrix
9. If $y = \log x$ then find $\frac{dy}{dx}$
10. Find $\int (e^x - 1)dx$

SECTION – B**(5 X 5 = 25 MARKS)****ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K3)**

11. a) A sum of money amounted to Rs 1,071 in 6 months and Rs 1,106 in 16 months. Calculate the rate of simple interest.

(OR)

- b) A bill for Rs1,825 was drawn on 22nd January at 6 months date and discounted on 16th April at the rate of 10% per annum. Find the sum for which the bill was discounted and the banker's gain.

- 12.a) In an arithmetic series, the seventh and the ninth terms are respectively 16 and 20 . Find the n th term

(OR)

- b) If $A = \{1,2,3\}$, $B = \{1,2,3,4,5\}$ and $C = \{3,4,5,6\}$ find (i) $(A \Delta B)$ (ii) $(A \cup (B \Delta C))$
(iii) $(A \Delta B) \cap C$

(CONTD.....2)

13.a) Find the Rank of the matrix, $A = \begin{bmatrix} 3 & 2 & -1 \\ 7 & 8 & 5 \\ 3 & 5 & 6 \end{bmatrix}$

(OR)

b) If $A = \begin{bmatrix} 3 & 5 \\ 2 & a \end{bmatrix}$, $B = \begin{bmatrix} 4 & b \\ 2 & 9 \end{bmatrix}$ and $C = \begin{bmatrix} 26 & a \\ 14 & 45 \end{bmatrix}$ find a and b when $2A + 5B = C$

14 a) The demand curve for a monopolist is given by $x = 100 - 4p$

(i) Find the total revenue, average revenue and marginal revenue.

(ii) At what level of x , the marginal revenue is equal to zero.

(OR)

b) Find $\frac{d}{dx}(x(x^2 - 1)(x^2 + 4))$

15.a) If the marginal revenue function is $R'(x) = 15 - 9x - 3x^2$ find the revenue function and demand function.

(OR)

b) Evaluate (i) $\int_0^2 (x^2 - 4x + 5)dx$ and (ii) $\int_0^4 (\sqrt{x} + e^x) dx$

SECTION – C

(5 X 8 = 40 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

(K4 (Or) K5)

16. a) Calculate the compound interest for the following.

(i) For Rs2500 for 4 years at 8% per annum.

(ii) In the above case when interest is compounded (a) half yearly (b) quarterly

(OR)

b) A bill for Rs1,825 was drawn on 22nd January at 6 months date and discounted on 16th April at the rate of 10% per annum. Calculate the sum for which the bill was discounted and the banker's gain.

17a) State and prove Demorgan's Laws.

(OR)

b) The sum of 3 numbers in G.P is 35 and their product is 1000. Evaluate the numbers.

18 a) Compute the inverse of the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 0 & -1 & 4 \\ -2 & 2 & 1 \end{bmatrix}$

(OR)

b) Using matrix inversion method, solve the following system of equation:
 $2x - y + 3z = 1$, $x + y + z = 2$ and $x - y + z = 4$

19a) Calculate the maxima and minima of the function $2x^3 - 3x^2 - 36x + 10$

(OR)

b) Compute the derivatives of the following:

(i) $y = (x^2 + 5)(3x + 1)$ (ii) $y = \frac{3x^2}{4x - 1}$ (iii) Calculate the fourth derivatives of

$\log_e \sqrt{3x + 4}$

20 a) Using partial fractions, solve $\int \frac{(x^2 + x + 1)dx}{(x - 1)^2(x - 2)}$

(OR)

b) Solve (i) $\int x^2 e^x dx$ (ii) $\int (\log x)^3 dx$ by integration by parts
