(FOR THE CANDIDATES ADMITTED   SUBJECT CODE 22UCF3A4

DURING THE ACADEMIC YEAR 2022 ONLY)   REG.NO. :

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI

END-OF-SEMESTER EXAMINATIONS NOVEMBER -2023

B.Com-FINANCE   **MAXIMUM MARKS:50**

SEMESTER - III   **TIME: 3 HOURS**

PART – III
BUSINESS MATHEMATICS
SECTION – A   (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.

1.A simple interest on 50,000 at 10% p.a for 10 years is

    a.50,000   b. 25,000   c.5,000   d. 30,000

2. A set having no element is called a

    a. null set   b. empty set   c. void set   d. All of these

3. The number of elements in the square matrix of order 3x3 is equal to

    a. 6   b.9   c.12   d. 15

4.The derivative of x^2 with respect to **x** is

    a. x^3 b. x   c. 2x   d. 2

5. $\int dx$ is equal to

    a. x + c   b. x^2 + c   c. 1   d. 2

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES

6. What is compound interest?

7. Define the term 'set'.

8. Write a note on 'rank of a matrix'.

9. What is meant by differentiation?

10.What do you understand by integration?

SECTION – B   (5 X 3 = 15 MARKS)
ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

11.   a) Find the principal amount which yields simple interest of Rs.77 in 8 years at 3 1/2% p.a

               (OR)

    b) Find the number of years in which a sum of money will triple itself at 10% p.a simple interest.

12.   a)Explain the types of set.

               (OR)

    b) State whether or not the sets A and B are equal in the following:

         A= {-2,2}, B = {X / X^2- 4 = 0}

ETHICAL PAPER

13.   a) If A = [1 2 3] and B = $\begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{bmatrix}$ Compute AB.

(OR)

b) Find the rank of the matrix $\begin{bmatrix} 1 & 2 & 3 \\ 4 & 8 & 10 \end{bmatrix}$

14.   a) Find the differential co-efficient of x^3+x^2+x with respect to x.
(OR)
b) If $y= (e^{5x})$, find dy / dx.

15.   a) Evaluate $\int \sqrt{x}\, dx$
(OR)
b) Integrate the following w. r. to x.
    (i) cot x / sin x   (ii) $1+ \tan^2 x$

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

16.   a) Find the amount for an annuity of Rs.400 per quarter payable for 6 years at 8% p.a compounded quarterly.

(OR)

b) Find the true discount on a bill of Rs.5175 due 6 months hence, if the rate of interest is 7% p.a. Also find (i) Banker's discount (ii)   Banker'sGain**.**

17.   a)In a village with a population of 3000, it is reported that 2,200 people read 'The Hindu',1000 read the 'Indian Express' and 300 read both. Find how many people read neither.

(OR)

b)In a class consisting of 120 students, 30 take income tax, 40 take accountancy and 45 take costing, 15 students take both income tax and accountancy, 20 take income tax and costing, 12 take accountancy and costing, 8 take all the three subjects. Find out (a) How many do not take any of these subjects? (b) How many takes only one subject? (c) How many takes two subjects? Show using Venn diagram.

18.   a) If A = $\begin{bmatrix} 4 & 3 & 6 \\ 2 & -5 & -8 \end{bmatrix}$ B = $\begin{bmatrix} 2 & -6 & -4 \\ 5 & 3 & 7 \end{bmatrix}$ and C = $\begin{bmatrix} 5 & 3 & 7 \\ -7 & 10 & 1 \end{bmatrix}$

Find (i) A+B+C   (ii) 2A + 3C   (iii) A-B   (iv) 2A-B+C
(OR)
b) Explain the types of matrices.

19.   a)Show that x^3-3x^2+3x+7 has neither a maximum nor a minimum value on the real line
(OR)
b)Find the point of inflexion of the convey $y= x^3-2x^2+x+3$

20.   a) Evaluate $\int$ sin x / 1+sin x *dx.
(OR)
b)Evaluate $\int \sqrt{1 + \sin 2x}\, dx$.