(NO.OF PAGES:3)

21UCF3A4

FOR THE CANDIDATES ADMITTED
DURING THE ACADEMIC YEAR 2021 ONLY) **REG.NO**

NGM COLLEGE (AUTONOMOUS) POLLACHI

END-OF-SEMESTER EXAMINATIONS: DECEMBER-2022

B.Com-Finance **MAXIMUM MARKS: 70**

III SEMESTER **TIME: 3 HOURS**

PART III

ALLIED- III BUSINESS MATHEMATICS

SECTION – A (10 X1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS
MULTIPLE CHOICE QUESTIONS (K1)

1. _____ of an annuity is the sum of the present values of all the instalment payments.
   (a) Present value (b) Amount (c) Simple interest (d) Discount

2. Two sets A and B are said to be _____ if they have no element in common.
   (a) power set (b) disjoint (c) equal (d) subset
   (b)

3. A square matrix A such that $a_{ij} = a_{ji}$ is called a _____ matrix.
   (a) Unit (b) equal
   (c) symmetric (d) skew-symmetric

4. _____ is the differential co-efficient of the function $y = x^2 - 4$ with respect to x.
   (a) 2 (b) 2x-4 (c) 2x (d) $\frac{x^3}{3} - 4x$.

5. The total benefit derived by the consumers who pay more than the equilibrium price is called _____.
   (a) consumer's surplus (b) variable
   (c) integration (d) differentiation

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

6. Write the formula for present value of an Annuity Due.

7. If A= { 1, 2, 4, 6, 8}, B= { 2, 3, 4**,** 5, 6}, C= { 3, 6, 9, 12, 15} find A-B and C-A.

8. Define Non-singular matrix.

9. Differentiate e^{ax+b}.

10. Write the value of $\int x^n dx$.

(CONTD …. 2)

SECTION – B (5 X 4 = 20 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 person wishes to collect Rs. 1,20,000 for a house at the time of retirement due after 18 years. If the rate of compound interest is 6% per annum, how much should be deposit annually to receive this amount?

12. a) If A={1, 2, 3, 4}, B={2, 4, 5, 6} and C={1, 3, 5}. Verify that $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$.

(OR)

b) The fourth and seventh terms of an A.P are 3 and 36. Find the A.P and its fifteenth term.

13. a) Solve the following equations by Cramer's rule

$3x+2y=8$

$5x-3y=7$.

(OR)

b) Find the minors and co-factors of all the elements of $\begin{vmatrix} 3 & 2 \\ 5 & 0 \end{vmatrix}$.

14. a) Differentiate $x^2 \log_a x$ with respect to x.

(OR)

b) 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 zereo.

15. a) Evaluate $\int_0^2 (x^2 - 4x + 5)dx.$

(OR)

b) Evaluate $\int \frac{xdx}{(x-1)(2x+1)}$.

SECTION – C (4 X 10 = 40 MARKS)

ANSWER ANY FOUR OUT OF SIX QUESTIONS.
(16TH QUESTION IS COMPULSORY AND ANSWER ANY THREE QUESTIONS FROM Q.NO: 17 TO 21) (K4) OR (K5)

16. The banker's discount is 51 times the banker's gain. Find the term of the bill if interest is 8% p.a.

(CONTD …. 3)

17. Of the total number of 200 students appearing in an examination, 140 passed in mathematics and 100 passed in statistics. If 40 of them failed in both mathematics and statistics, what percentage of students passed
    (i) atleast in one of the two subjects?
    (ii) in both the subjects.

.

18. Find the inverse of the matrix $A = \begin{bmatrix} 1 & 0 & -1 \\ 3 & 4 & 5 \\ 0 & -6 & -7 \end{bmatrix}$.

19. Find the elasticity of supply from the supply function $p = -2 + 5x$.

20. Solve $\int x^2 e^x dx$ by integration by parts.

21. The marginal cost function for producting x units is $y = 23 + 16x - 3x^2$ and the total cost for producing 1 unit is 40. Obtain the total cost function and the average cost function.

****

ETHICAL PAPER