

(FOR THE CANDIDATES ADMITTED

DURING THE ACADEMIC YEAR 2021 ONLY)

REG.NO. :

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

END-OF-SEMESTER EXAMINATIONS : DECEMBER-2022

COURSE NAME: B.Com

MAXIMUM MARKS: 70

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 rank of (3) is _____.
a) 0 b) 2 c) 3 d) 1
2. The geometric progression between 14 and 19 is _____.
a) ± 8 b) -8 c) ± 6 d) -6.
3. Which of the following is not an elementary transformation?
a) Interchanging of any two rows (or) columns
b) Interchanging of row and columns
c) Additional to the elements of a row the corresponding elements of another row
d) Multiplication of each element of a row (or column) by any non-zero scalar.
4. Integration with limit is called _____.
a) Definite integral b) Indefinite integral c) Integral d) Absolute integral
5. The value of $\int dx$ is _____.
a) $X+c$ b) $1+c$ c) $1/x +C$ d) X^2+C

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES.

K2

6. What is simple interest?
7. Define geometric progression.
8. Define rank matrixes
9. What is product rule?
10. What is constant?

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) Balu borrowed Rs. 25,000 from Rathinam but could not repay the amount in a period of 5 years. Accordingly, Rathinam demands now Rs. 35,880 from Balu .At what percent p.a compound interest dis Rathinam lend his money.

- 12.a) A man borrows Rs. 1200 at the total interest of Rs. 168 He pays the entire amount in 12 instalments each instalment being less than the preceding one by Rs. 20 calculate the first instalment.

(OR)

- b) Calculate the four numbers forming a geometric progression if the first number exceeds the second by 36 and the third number is greater than the fourth by 4.

- 13.a) Find the inverse of $\begin{bmatrix} 2 & 2 \\ 3 & 5 \end{bmatrix}$

(OR)

- b) Find the value of the determinant = $\begin{vmatrix} 3 & -2 & 1 \\ 2 & 3 & 1 \\ 1 & 1 & 1 \end{vmatrix}$

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

(OR)

- b) Find the derivation $5^x x^5$

- 15.a) Solve $\int x^2 e^x dx$ by integration by part

(OR)

- b) Evaluate $\int x^3 / (x^2 + 1)^3 dx$

SECTION - C**(4 X 10 = 40 MARKS)****ANSWER ANY FOUR OUT OF SIX QUESTIONS**

(16th QUESTION IS COMPULSORY AND ANSWER ANY THREE QUESTIONS (FROM Qn. No : 17 to 21) (K4 (Or) K5)

16. A person has two daughters A and B aged 13 and 16 years. He has Rs.40,000 with him now but wants that both of them should get an equal amount when they are 20 years old. How should he divide the money if it were to be deposited in a bank giving 9 % compound interest per annum?
17. Two posts are offered to a person .The first carries a starting salary of Rs. 1000 per month and an annual increment of Rs. 40.The second carries a starting salary of Rs. 800 and an annual increment of Rs.50 .Assuming that he works for 25 years, which of the two is more profitable?
18. Using matrix inversion method, solve the following system of equation.
 $2X - Y + 3Z = 1$
 $X + Y + Z = 2$
 $X - Y + Z = 4$
19. Find the rank of A,B, $A+B$ and AB where $A = \begin{bmatrix} 1 & 1 & -1 \\ 2 & -3 & 4 \\ 3 & -2 & 3 \end{bmatrix}$ $B = \begin{bmatrix} -1 & -2 & -1 \\ 6 & 12 & 6 \\ 5 & 10 & 5 \end{bmatrix}$
20. Differentiate the following with respect to x .
 i) $x^3 - 3x^2 + 4x + 3$
 ii) $x^5 + 3 \log x - 4e^x$
21. Evaluate $\int (x + 1/x)^2 dx$.
