(FOR THE CANDIDATES ADMITTED   SUBJECT CODE 23UEC4A1

DURING THE ACADEMIC YEAR 2023-24 ONLY)   REG.NO. [   ]

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

END-OF-SEMESTER EXAMINATIONS : MAY – 2025

B.Com. E COMMERCE   MAXIMUM MARKS: 75

SEMESTER: IV   TIME : 3 HOURS

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

ANSWER THE FOLLOWING QUESTIONS.   **(K1)**

1.   Which of the following is true about simple interest?

   a)   It grows exponentially.   b)   It is calculated only on the principal amount.

   c)   It includes compounding.   d)   It decreases over time.

2.   Which of the following matrices can be multiplied with a 3×2 matrix?

   a) 3×3 matrix.   b)   A 2×3 matrix.   c)   A 2×2 matrix.   d) A 2×4 matrix.

3.   Select median, if the mode of a dataset is 20 and the mean is 25…………..

   a)   23   b)   20   c)   25   d)   Cannot be determined

4.   If two variables increase together, choose their correlation.

   a)   Negative   b)   Positive   c)   Zero   d)   Uncertain

5.   Which index number method assigns greater weight to the base year?

   a)   Fisher's ideal index   b)   Paasche's method

   c)   Laspeyres method   d)   Weighted average index

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES.   **(K2)**
6.   What is depreciation?.
7.   How do you find the rank of a matrix?
8.   What does standard deviation measure?
9.   What is the ranking method of correlation?
10.   Tell Fisher's Ideal Index .

SECTION – B   (5 X 5 = 25 MARKS)
ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING
QUESTIONS.   **(K3)**
11.   a)   What is compound interest? State the formula and explain its components.

(OR)

   b)   A principal amount of Rs.10,000 earns an annual interest of 5%. Find the compound

   interest after 2 years.

(CONTD …. 2)

ETHICAL PAPER

12.   a)   Explain the rules for the multiplication of matrices.

(OR)

b)   Solve the system of equations using matrices:
        2x+3y=8, 4x+y=10.

13.   a)   What is standard deviation? Explain its importance.
(OR)
b)   Define and calculate the arithmetic mean of the data " 4, 8, 12, 16, 20."

14.   a)   Define correlation and its types.

(OR)

b)   Write the properties of correlation coefficient.

15.   a)   Briefly write index numbers?
(OR)
b)   Explain the concept of cost of living index.

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 on a principal of Rs.8,000 at 10% per annum
             compounded annually for 2 years.
(OR)
b)   An asset worth Rs.50,000 depreciates at 10% annually. Calculate its value after 3
       years using the reducing balance method.

17.   a)   Solve the system of equations using the inverse of a matrix:

       x+2y = 8, 3x - 4y = -2

(OR)

b)   Calculate the determinant of the matrix:

18.   a)   Calculate the mean, median, and mode for the data:

weight	50-60	60-70	70-80	80-90	90-100	100-110	110-120	120-130
no. of persons	2	10	13	15	13	8	2	1

(OR)
b)   Calculate the standard deviation for the data:

C.I	50-60	60-70	70-80	80-90	90-100	100-110	110-120	120-130
F	21	30	33	45	35	28	12	2

ETHICAL PAPER

19.   a)   Find Karl-Pearson's coefficient of correlation

| X | 20 | 25 | 35 | 45 | 43 | 36 | 12 | 22 |
| Y | 21 | 30 | 33 | 45 | 35 | 28 | 12 | 28 |

(OR)

  b)   Find Spearman's coefficient of correlation

| X | 26 | 25 | 39 | 45 | 42 | 36 | 12 | 22 |
| Y | 25 | 39 | 33 | 45 | 30 | 28 | 17 | 30 |

20.   a)   Find price index number by using Laspears and Paacshees methods

ITEMS	PRICE IN		QUANTITY IN	
	2005	2010	2005	2010
A	59	93	19	15
B	45	50	20	14
C	65	100	50	44
D	85	97	10	5

(OR)

  b)   Find price index number by using Fisher's Ideal Index method .

ITEMS	PRICE IN		QUANTITY IN	
	2010	2015	2010	2015
A	42	93	19	18
B	45	55	20	18
C	61	86	50	40
D	89	92	10	8

****

ETHICAL PAPER