

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

END-OF-SEMESTER EXAMINATIONS : MAY – 2024

B.Com. – E.Commerce

MAXIMUM MARKS: 50

SEMESTER : IV

TIME : 3 HOURS

PART – III

BUSINESS MATHEMATICS AND STATISTICS

SECTION – A (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.

MULTIPLE CHOICE QUESTIONS.

(K1)

1. In how many years will Rs. 5000 grow to Rs. 10000 at 12.5% simple interest?
a) 8 Years b) 12 Years c) 20 Years d) 9 Years
2. A matrix that, when multiplied by itself, yields itself
a) Idempotent matrix b) Involuntary matrix
c) Symmetric matrix d) None of the above
3. The median of the data 3,7,2,11,4 and 9 is.....
a) 2.3 b) 3.4 c) 3.6 d) 5.5
4. The geometric mean of the two regression co-efficient is
a) $> r$ b) $< r$ c) $= r$ d) cannot determined
5. Which one of the following is called ideal Index Number?
a) Paasches method b) Lasperes method
c) Fishers solution d) None of these

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES.

(K2)

6. Write the formula for compound interest.
7. Define square matrix.
8. Define standard deviation.
9. State the methods of finding correlation co-efficient.
10. Explain the term 'Index Numbers'.

(CONTD 2)

SECTION – B**(5 X 3= 15 MARKS)****ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.****(K3)**

11. a) Babu bought a second hand Machine for Rs. 2500, then spent Rs. 500 on its repairs and sold it for Rs 3,300. Find his loss or gain per cent.

(OR)

- b) A sum of ` 10,000 is borrowed at a rate of interest 15% per annum for 2 years. Find the simple interest on this sum and the amount to be paid at the end of 2 years.

12. a) Find the value of $X - Y$ if $2 \begin{bmatrix} 1 & 3 \\ 0 & x \end{bmatrix} + \begin{bmatrix} y & 0 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 5 & 6 \\ 1 & 8 \end{bmatrix}$

(OR)

- b) Solve the following matrix equation for x.

$$\begin{bmatrix} x & 1 \end{bmatrix} \begin{bmatrix} 1 & 0 \\ -2 & 0 \end{bmatrix} = 0$$

13. a) The average weight of a group of seven boys is 56 kg. The individual weights (in kg) of six of them are 52, 57, 55, 60, 59 and 55. Find the weight of the seventh boy.

(OR)

- b) Write the merits of median

14. a) Calculate the correlation coefficient of the given data.

x	50	51	52	53	54
Y	3.1	3.2	3.3	3.4	3.5

(OR)

- b) Find the means of X and Y variables and the coefficient of correlation between them from the following two regression equations: $2y - x - 50 = 0$ and $3y - 2x - 10 = 0$.

15. a) Explain the problems for construction of index numbers.

(OR)

- b) Write a short note on Unweighted index numbers

(CONTD3)

SECTION – C**(5 X 5 = 25 MARKS)****ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.****(K4/K5)**

16. a) At what rate of compound interest per annum, a sum of RS. 1200 becomes Rs. 1348.32 in 2 years?

(OR)

- b) At what rate of compound interest per annum, a sum of Rs. 1200 becomes Rs. 1348.32 in 2 years?

17. a) Calculate the inverse of the following matrix

$$A = \begin{bmatrix} 2 & 4 & -6 \\ 7 & 3 & 5 \\ 1 & -2 & 4 \end{bmatrix}$$

(OR)

- b) Solve the following system of equations by crammer's rule.

$$2x + 3y - z = 9; x + y + z = 9; 3x - y - z = -1$$

18. a) Find mean, median and mode to the data below.

C. I	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
f	2	4	8	13	12	10	6	2

(OR)

- b) Find Standard deviation to the data below.

C. I	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
f	2	10	11	13	15	10	6	2

19. a) Find the Pearson's coefficient of correlation.

X	19	13	15	19	20	21
Y	17	19	21	26	21	25

(OR)

(CONTD 4)

- b) Write the Spearman's co-efficient of correlation to the data below.

X	19	13	15	19	20	21
Y	17	19	21	26	21	25

20. a) Find price index numbers by using Fishes method. Also verify its tests.

commodity	Price		quantity	
	in 2000	in 2005	in 2000	in 2005
A	2	3	5	4
B	3	5	7	6
C	4	7	7	7
D	3	3	5	4
E	6	5	5	3
F	5	8	3	5

(OR)

- b) Calculate price index numbers by using (i) Laspears (ii) Paaschies method.

commodity	Price		quantity	
	in 2006	in 2016	in 2006	in 2016
P	8	3	7	4
Q	3	5	7	6
R	4	10	5	6
S	5	7	5	4
T	6	5	6	5