

(8 pages)

Reg. No. : .....

Code No. : 10299 E Sub. Code : CMEC 22

B.A. (CBCS) DEGREE EXAMINATION, APRIL 2025.

Second Semester

Economics — Core

STATISTICS FOR ECONOMICS — II

(For those who joined in July 2021 and 2022 only)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. If the value of Correlation Coefficient is 0.5, the relationship between the variables is
  - (a) low
  - (b) moderate
  - (c) high
  - (d) zero
2. Rank correlation co-efficient method was developed by
  - (a) Spearman
  - (b) Karl Pearson
  - (c) Adam Smith
  - (d) Fisher

3. Regression analysis reveals the \_\_\_\_\_ relationship between the variables.
  - (a) average
  - (b) degree of
  - (c) direction of
  - (d) all the above
4. In the regression equation  $Y = 21 - 3x$ , the slope is
  - (a) 21
  - (b) 3
  - (c) -3
  - (d) 18
5. Prosperity, Recession and Depression in a business is an example of
  - (a) Cyclical Trend
  - (b) Secular Trend
  - (c) Irregular Trend
  - (d) Seasonal Trend
6. An orderly set of data arranged in accordance with their time of occurrence is called
  - (a) Arithmetic series
  - (b) Harmonic series
  - (c) Geometric series
  - (d) Time series
7. Which of the following statements is/are correct about average prices if the price index is 110?
  - (a) The prices have increased by 10 per cent
  - (b) The prices have increased by 110 per cent
  - (c) The prices have decreased by 10 per cent
  - (d) None of the above

8. The Factor Reversal Test is satisfied by
- Simple Average Price Relatives Method
  - Marshall-Edgeworth Method
  - Fisher's Ideal Index
  - All of the above
9. For two attributes A and B, the ultimate class frequencies will be
- Two
  - Four
  - Six
  - Nine
10. The events that cannot occur simultaneously are called as
- Exhaustive Events
  - Mutually exclusive events
  - Equally likely events
  - Independent events

PART B — (5 × 5 = 25 marks)

Answer ALL questions by choosing (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Give a brief account of Karl Pearson's coefficient of correlation.

Or

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- (b) Find out coefficient of Rank Correlation from the following data :

X	10	8	7	6	3	2	4	9	5	1
Y	9	10	6	5	7	8	4	2	3	1

12. (a) Calculate the regression equation of X on Y and Y on X from the following data :

X	10	12	13	17	18
Y	5	6	7	9	13

Or

- (b) Write a brief note on Regression Coefficient.
13. (a) Explain the various components of a time series.

Or

- (b) Calculate trend values by taking 5 yearly moving average from the data given below :

Year	2008	2009	2010	2011	2012	2013	2014	2015
Value	4	5	6	7	9	6	5	7
Year	2016	2017	2018	2019	2020	2021	2022	2023
Value	8	7	6	8	9	10	7	9

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14. (a) Analyse the problems in the construction of Index Number.

Or

- (b) Compute the Index Number using Aggregate Expenditure Method.

Commodity	Q <sub>0</sub>	P <sub>0</sub>	P <sub>1</sub>
A	20	2	5
B	4	4	8
C	10	1	2
D	5	5	10

15. (a) Find Yule's coefficient of association for the following :

$$(AB) = 6; (A\beta) = 4; (\alpha B) = 3; (\alpha\beta) = 8.$$

Or

- (b) A problem in Statistics is given to three students A, B, C whose changes of solving it are  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$  respectively. What is the probability that the problem will be solved?

PART C — (5 × 8 = 40 marks)

Answer ALL questions by choosing (a) or (b).

Each answer should not exceed 600 words.

16. (a) Calculate the Pearson's coefficient of correlation from the following data. Take 65 and 70 as the assumed average of the variate X and Y respectively.

X	45	55	56	58	60	65	68	70	75	80	85
Y	56	50	48	60	62	64	65	70	74	82	90

Or

- (b) Describe the types of correlation with example.

17. (a) The following table gives the various values of two variables.

X	42	44	58	55	89	98	66
Y	56	49	53	58	65	76	58

Determine the regression equations which may be associated with these values and calculate coefficient of correlation.

Or

- (b) Find both the regression lines and estimate the value of Y for X = 50 and the value of X for Y = 30.

	Scores in Statistics (X)	Scores in Maths (Y)
Mean	39.5	47.5
Standard Deviation	10.8	17.8

Karl Pearson's correlation coefficient between X and Y = -0.42.

18. (a) Find the trend by the method of four-yearly moving average.

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Production	464	515	518	467	502	540	557	571	586	612

Or

- (b) Calculate trend values by the method of least square from the data given below :

Year	2017	2018	2019	2020	2021	2022	2023
Value	83	60	54	21	22	13	23

19. (a) Compute Fisher's Ideal Index from the given data. Does it satisfy the time reversal and factor reversal tests?

Commodity	Price (2019)	Price (2024)	Quantity (2019)	Quantity (2024)
A	8	20	50	60
B	2	6	15	10
C	1	2	20	25
D	2	5	10	8
E	1	5	40	30

Or

- (b) By using (i) Lasperes Method (ii) Paasche Method and (iii) Fisher's Method, construct price index for the following data :

Item	$P_0$	$Q_0$	$P_1$	$Q_1$
A	2	8	4	6
B	5	10	6	5
C	4	14	5	10
D	2	19	2	13

20. (a) Explain the Addition and Multiplication Theorems of Probability in detail.

Or

- (b) Write short notes on :
- Association of Attributes
  - Yule's coefficient of Association
  - Dependent and Independent Events
  - Simple and Compound Events.