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Reg. No. : .....

Code No. : 20664 E Sub. Code : CMEC 22

B.A. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2024.

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. Correlation Analysis attempts to determine the \_\_\_\_\_ relationship between the variables.
  - (a) cause and effect
  - (b) degree of
  - (c) average
  - (d) spurious
2. If the Pearson correlation co-efficient 'r' is equal to 1, then there is \_\_\_\_\_ relationship between the two variables.
  - (a) a positive
  - (b) a negative
  - (c) a perfect positive
  - (d) a perfect negative
3. A process by which we estimate the value of dependent variable on the basis of one or more independent variables is called
  - (a) Correlation
  - (b) Regression
  - (c) Residual
  - (d) Deviation
4. The geometric mean of the two regression-coefficient  $b_{yx}$  and  $b_{xy}$  is equal to
  - (a)  $r$
  - (b)  $r^2$
  - (c) zero
  - (d) 2
5. The method of moving average is used to find the \_\_\_\_\_.
  - (a) Secular Trend
  - (b) Seasonal variations
  - (c) Cyclical variation
  - (d) Irregular variations

6. In time series, seasonal variations can occur within a period of
- Four years
  - Three years
  - One year
  - Nine years
7. The index number for base year is always \_\_\_\_\_.
- 1000
  - 200
  - 100
  - 10
8. Index number is a special type of \_\_\_\_\_.
- Dispersion
  - Correlation
  - Average
  - None of the above
9. What will be the probability of an impossible event?
- 0
  - 1
  - Infinity
  - 50
10. For two attributes  $A$  and  $B$ , the number of classes will be
- Two
  - Four
  - Six
  - Nine

PART B — (5 × 5 = 25 marks)

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

11. (a) Explain the types of correlation.

Or

- (b) Calculate coefficient of correlation by Pearson's method between the density of population and death rate.

Cities	A	B	C	D	E	F
Density	200	500	400	700	600	300
Death Rate	10	16	14	20	17	13

12. (a) What do you understand by Regression Analysis? Describe its uses.

Or

- (b) From the following data obtain the two regression equations.

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

13. (a) Discuss the need for analysis of Time Series.

Or

- (b) Calculate three yearly moving average of the following data.

Year	2014	2015	2016	2017	2018
No. of students	15	18	17	20	23
Year	2019	2020	2021	2022	2023
No. of students	25	29	33	36	40

14. (a) Analyse the uses and limitations of Index Numbers.

Or

- (b) Construct the Consumer Price Index Number for 2023 on the basis of 2020 from the following data using Family budget Method.

Items	Price in 2020 (Rs.)	Price in 2023 (Rs.)	Weights
Food	2,000	2,800	30
Rent	1,000	2,000	20
Clothing	1,500	1,200	20
Fuel and Lighting	500	1,000	10
Miscellaneous	1,000	2,000	20

15. (a) Elucidate the Addition theorem of Probability with suitable example.

Or

- (b) What is meant by 'Association of Attributes'? Explain the types of Association.

PART C — (5 × 8 = 40 marks)

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

16. (a) Using rank correlation method, determine the relationship between debenture prices and share prices.

Year	1	2	3	4	5	6	7
Debenture Price	97.8	99.2	98.8	98.3	98.4	96.7	97.1
Share Price	73.2	85.8	78.9	75.8	77.2	87.2	83.8

Or

- (b) Calculate the correlation coefficient between the height of father and son from the given data and interpret the result.

Height of Father (in inches)	64	65	66	67	68	69	70
Height of Son (in inches)	66	67	65	68	70	68	72

17. (a) You are given the data relating to purchase and sales. Obtain the two regression equations and estimate the likely sales when the purchase is 100.

Purchases	62	72	98	76	81	56	76	92	88	49
Sales	112	124	131	117	132	96	120	136	97	85

Or

- (b) Examine the difference between Correlation and Regression Analysis.
18. (a) Explain the various methods of determining trend in a time series. Explain the merits and demerits of each method.

Or

- (b) Fit a straight line trend by the method of least squares to the following data and predict earnings for the year 2025.

Year	2016	2017	2018	2019
Earnings (Rs. Lakhs)	38	40	65	72
Year	2020	2021	2022	2023
Earnings (Rs. Lakhs)	69	60	87	95

19. (a) Discuss the problems in the construction of Index Numbers.

Or

- (b) With the help of the following data, calculate Fisher's Ideal Index and prove that it satisfies both the Time Reversal Test and Factor Reversal Test.

Commodity	2020		2023	
	Price	Quantity	Price	Quantity
A	5	10	6	12
B	7	12	10	8
C	10	8	12	8
D	4	5	5	6
E	8	7	8	8

20. (a) In a class test, it was discovered that out of 135 students, 75 students failed in Mathematics, 90 failed in Statistics and 50 failed in both. Find the magnitude of association and state if there is any association between failing in Mathematics and Statistics.

Or

- (b) Write short notes on :
- Mutually Exclusive Events
  - Equally Likely Events
  - Exhaustive Events and
  - Dependent and Independent Events.