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Reg. No. : ....

Code No. : 22968 E   Sub. Code : SMEC 22

B.A. (CBCS) DEGREE EXAMINATION, APRIL 2019.

Second Semester

Economics — Main

STATISTICAL METHODS — II

(For those who joined in July 2017-2018 onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. If two variables were perfectly correlated the correlation co efficient 'r' would equal

   (a) 0

   (b) less than 1

   (c) exactly 1

   (d) −1 or +1

2. If one of the regression coefficient is negative, the other is always

   (a) Zero   (b) Negative

   (c) Positive   (d) 1

3. Time series are also called

   (a) Geographical classification

   (b) Chronological classification

   (c) Qualitative classification

   (d) Quantitative classification

4. Secular trend refers to the

   (a) Short term movement

   (b) Long term movement

   (c) Seasonal movement

   (d) Cyclical variations

5. The Geometric mean of Laspeyre's and Paasche's methods is the index number in

   (a) Fisher's ideal method

   (b) Marshal Edge worth method

   (c) Bowley Darfish method

   (d) Kelly's index method

6. $P_{01} \times Q_{01}$ is true value ratio, the index number is said to be satisfying

    (a) Time Reversal Test

    (b) Factor Reversal Test

    (c) Unit test

    (d) Circular Test

7. The calculated frequency is equal to the expected frequency then the association is

    (a) independent

    (b) positive

    (c) negative

    (d) no association

8. Yule's co efficient of association ranges in between

    (a) Zero and –1

    (b) Zero and 1

    (c) One and 2

    (d) ± 1

9. The Probability of getting an ace form a pack of 52 cards

    (a) 1/52

    (b) 1/13

    (c) 1/4

    (d) 4/13

10. The event is absolutely certain the probability is

    (a) 0

    (b) –1

    (c) +1

    (d) >1

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Find out the Karl Pearson's coefficient of correlation in the following series.

    X : 1 2 3 4 5 6 7 8 9

    Y : 9 8 10 12 11 13 14 16 15

Or

    (b) What is the value of coefficient of correlation if $\Sigma xy = 5$, $\Sigma x^2 = 81$ and $\Sigma y^2 = 16$?

12. (a) State the uses of the analysis of seasonal variations.

Or

(b) Calculate the 3 yearly moving average

Year : 95 96 97 98 99 2000 01 02 03 04

Production : 150 180 170 200 230 250 290 330 360 400

13. (a) Calculate Paasches index number.

Commodity	Price		Quantity	
	1985	1990	1985	1990
A	9	15	5	5
B	4	12	10	11
C	1	5	6	6

Or

(b) Briefly explain the characteristics of Index number.

14. (a) Calculate yule's co-efficient associations between smoking and coffee drinking habits.

Habits	Coffee drinkers	Non-coffee drinkers
Smokers	90	65
Non-smokers	260	110

Or

(b) Explain the methods of calculating the association of attributes.

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15. (a) A box contains 3 white balls and 4 red balls. What is the probability that 3 balls are white?

Or

(b) Explain the multiplication theorem with illustration.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Calculate Pearson's co-efficient of correlation from the following data using 44 and 26 as the origin of x and y respectively.

X : 43 44 46 40 44 42 45 42 38 40 42 57

Y : 29 31 19 18 19 27 27 29 41 30 26 10

Or

(b) Find the regression equations from the following data.

X : 18 19 10 21 22 23 24 25 26 27

Y : 17 17 18 18 19 19 19 20 21 22

17. (a) Calculate the Trend values by the method of least squares also calculate the monthly in Crease in sales and trend value for 2012.

Year : 2001 2002 2003 2004 2005 2006 2007

Sales : 125 128 133 135 140 141 143

Or

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(b) Calculate 4 yearly moving average from the following.

Year :	1999	2000	2001	2002	2003	2004	2005	2006	2007
Sales (Rs.) :	200	240	280	320	360	400	360	320	280

18. (a) Construct Fisher's Ideal index number for the following data and show how it satisfies the time and Factor Reversal Tests.

Commodity	2008		2009	
	Quantity	Price	Quantity	Price
A	20	12	30	14
B	13	14	15	20
C	12	10	20	15
D	8	6	10	4
E	5	8	5	6

Or

(b) Calculate the cost of living index number from the following data.

Items	Price		Weight
	Base year	Current year	
A	30	47	4
B	8	12	1
C	14	18	3
D	22	15	2
E	25	30	1

19. (a) Calculated Yule's coefficient of association given (A) = 170 (B) 180 (AB) = 100 N = 300.

Or

(b) Explain the importance of probability.

20. (a) A bag contains 8 white 2 red and 10 black balls, Two balls are drawn at random. Find the probability that

(i) They will both be red

(ii) One of each colour.

Or

(b) Calculate Yule's coefficient of association given (A) = 300, (B) = 50, (AB) = 200, N = 170.

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