KAMARAJ COLLEGE (Autonomous)

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(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

(6 Pages) **Reg.No:……**

Question Code: 26E01703 **Course Code: 24UECR41**

UG Degree - End Semester Examinations, April 2026

Fourth Semester

B. COM CORPORATE SECRETARYSHIP

Business Statistics II

(For those who joined in July 2024 onwards)

Time: 3Hours **Maximum: 75 Marks**

PART – A (10 × 1 = 10 Marks)

Answer ALL Questions

Choose the correct answer :

CO:1 K:1 1. The coefficient of correlation

(a) Has no limits (b) Can be less than 1

(c) Can be more than 1 (d) Varies between ± 1

CO:1 K:2 2. The value of r^2 for a particular situation is 0.81. What is the coefficient of correlation

(a) 0.81 (b) 0.9

(c) 0.09. (d) 0.009

CO:2 K:1 3. The regression lines coincide, then r is

(a) 0 (b) -1

(c) 1 (d) 0.5

CO:2 K:2 4. Where r is zero the regression lines cut each other making an angle of

(a) 30^0 (b) 60^0

(c) 90^0 (d) None of the above

CO:3 K:1 5. The most widely used method of measuring seasonal variations is _____

(a) Ratio to moving average method (b) Ratio to Trend method

(c) Link relative method (d) None of the above

CO:3 6. Trend refers to a long term tendency to

K:2

(a) Decrease only (b) Either increase or decrease

(c) Increase only (d) Equal only

CO:4 7. The circular test is satisfied by

K:1

(a) Simple aggregative index (b) Passche's index

(c) Laspeyre's index (d) Kelly's index

CO:4 8. The best average in the construction of index numbers is

K:2

(a) Median (b) Geometric mean

(c) Mode (d) Arithmetic mean

CO:5 9. Which one of the following give us forecast for the future?

K:1

(a) Interpolations (b) Extrapolation

(c) Binominal (d) Newton's Method

CO:5 10. The simplest method of interpolation is:

K:2

(a) Graphic method (b) Interpolations

(c) Newton's Method (d) Extrapolation

PART – B (5 X 5 = 25 Marks)

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

Answer should not exceed 250 words.

CO:1 11. (a) Find Karl Pearson's coefficient of correlation from the following data:

K:3

Wages	100	101	102	102	100	99	97	98	96	95
Cost of living	98	99	99	97	95	92	95	94	90	91

(OR)

(b) A random sample of 5 college students is selected and their grades in Mathematics and Statistics are found to be Pearman's rank correlation

	1	2	3	4	5
Mathematics	85	60	73	40	90
Statistics	93	75	65	50	80

CO:2 12. (a) Determine the equation of a straight line which best fits the data. Also calculate the regression coefficient

K:4

X	10	12	13	16	17	20	25
Y	10	22	24	27	29	33	37

(OR)

(b) Given the following data estimate the marks in mathematics obtained by a student who has scored 60 marks in English

Mean of marks in Mathematics = 80
Mean of marks in English = 50
S.D of marks in Mathematics = 15
S.D of marks in English = 10
Coefficient of correlation = 0.4

CO:3 K:4 13. (a) The following figures relate to the profits of a commercial concern for 8 Years

Year	2008	2009	2010	2011	2012	2013	2014	2015
Profit	15,420	14,470	15,520	21,020	26,120	31,950	35,370	34,670

Find the trend of profits by the 3 yearly moving averages.

(OR)

(b) Assuming a four yearly cycle calculate the trend by the method of Moving averages from the following data relating to the production of tea in India.

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Production	464	515	518	467	502	540	557	571	586	612

CO:4 K:3 14. (a) Calculate index number from the following data.

	Base Year		Current Year	
	Kilo	Rate	Kilo	Rate
Bread	10	3	8	3.25
Meat	20	15	15	20
Tea	02	25	3	23

(OR)

(b) Compute a price index for the following by a (a) simple aggregate and (b) Average of price relative method by using both arithmetic mean and geometric mean:

Commodity	A	B	C	D	E	F
Price in 2014	20	30	10	25	40	50
Price in 2015	25	30	15	35	45	55

CO:5 K:3 15. (a) Using any method of interpolation, estimate the business done in April from the following data

Month	Jan	Feb	March	May	June
Business Income('000)	150	235	365	525	780

(OR)

(b) Extrapolate the profit for the year 2016 from the following data:

Year	Profits ('000)
2011	31
2012	42
2013	51
2014	65
2015	80

PART – C (5 X 8 = 40 Marks)

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

Answer should not exceed 500 words.

CO:1 K:3 16. (a) Calculate the Pearson's coefficient of correlation from the following data using 44 and 26 respectively as the origin of X and Y

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) From the following data calculate the rank correlation coefficient after making adjustment for tied ranks

X	48	33	40	9	16	16	65	24	16	57
Y	13	13	24	6	15	4	20	9	6	19

CO:2 K:4 17. (a) Calculate the two regression equations of X and Y and Y on X from the data given below taking deviation from actual means of X and Y.

Price	10	12	13	12	16	15
Amount demanded	40	38	43	45	37	43

Estimate the likely demand when the price is 20.

(OR)

(b) Price indices of cotton and wool are given below for the 12 months of a year. Obtain the equation of lines of regression between the indices.

Price index of Cotton (X)	78	77	85	88	87	82	81	77	76	83	97	93
Price index of Wool (Y)	84	82	82	85	89	90	88	92	83	89	98	99

CO:3 K:4 18. (a) Calculate trend value from the following data by using the method of least Square

Year	2010	2011	2012	2013	2014	2015
Production	7	9	12	15	18	23

(OR)

(b) For the following table

i) Fit a straight line trend by the method of least squares.

ii) Calculate the trend values

X	2009	2010	2011	2012	2013	2014	2015
Y	12	10	14	11	13	15	16

CO:4 K:5 19. (a) Construct with the help of the table below, fishers Ideal Index.

Commodity	2006		2007	
	Price	Qty	Price	Qty
A	6	50	10	56
B	2	100	2	120
C	4	60	6	60
D	10	30	12	24
E	8	40	12	36

Also prove from the above data that the factors Reversal and Time Reversal Tests are satisfied by Fisher's Ideal formula.

(OR)

(b) With the help of the following data prove that Fishers Ideal index satisfies both the time reversal test and factor reversal test

Commodity	2013		2014	
	Price	Value	Price	Value
A	5	50	6	72
B	7	84	10	80
C	10	80	12	96
D	4	20	5	30
E	8	56	8	64

CO:5 K:6 20. (a) Interpolate the figure of population for the year 2001 from the following data.

Year	1985	1995	2005	2015
Population of a town	25,494	29,003	32,528	36,070

(OR)

(b) Using any algebraic method interpolates the population for 1991. Calculate Lagrange Method of Interpolation

Year	1971	1981	2001	2011
Population	2522	2514	3168	3613