KAMARAJ COLLEGE (Autonomous)

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(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

(5 Pages) **Reg. No:……**

Question Code:26E02610 **Course 24UEBA31/24UESL31**

UG Degree - End Semester Examinations, April 2026

Third Semester

B.B.A /B.B.A Shipping and Logistics

Business Statistics

(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 collection of information, collected for a purpose is called_____.

(a) Mean (b) Median

(c) Mode (d) Data

CO:1 K:1 2. Which of the following is not a measure of central tendency?

(a) Standard deviation (b) Mean

(c) Median (d) Mode

CO:2 K:1 3. The correlation for the values of two variables moving in the same direction is_____.

(a) Perfect positive (b) Negative

(c) Positive (d) No correlation

CO:2 K:1 4. If any regression coefficient's value is zero, the two variables are_____.

(a) Independent (b) Qualitative

(c) Quantitative (d) Dependent

CO:3 K:1 5. Graph of time series is called_____.

(a) Line graph (b) Trend

(c) Historigram (d) Histogram

CO:3 K:1 6. The time series consists of_____.

(a) Two components (b) Three components

(c) Four components (d) Five components

CO:4 7. Index number for the base year is always:

K:1 (a) 100 (b) 101

(c) 198 (d) 1000

CO:4 8. Circular test is an extension of:

K:1 (a) Unit test (b) Time reversal test

(c) Circular test (d) Factor reversal test

CO:5 9. What is a hypothesis in statistics?

K:1 (a) A proven statement (b) An observed fact

(c) A prediction of future outcomes (d) Assumption to be tested

CO:5 10. ANOVA tests use which of the following distribution?

K:1 (a) T (b) Z

(c) F (d) Chi-square

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) Draw a pie chart to represent the following data about the different space limits of four compartments in a ship:

K: 5

Compartment No	....	1	2	3	4
Space limit ('000 c.ft)	....	180	160	140	120

(OR)

(b) Discuss in detail about various types of diagrammatic representation of statistical data.

CO:2 12. (a) Calculate the coefficient of correlation between x and y for the following data:

K:4

x :	1	2	3	4	5	6	7	8	9
y :	9	8	10	12	11	13	14	16	15

(OR)

(b) Find the SD of the following numbers :

27, 60, 40, 30, 32

CO:3 13. (a) Calculate five year moving averages for the following data.

K:4

Year :	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Value :	123	140	110	98	104	133	95	105	150	135

(OR)

(b) Examine the components of time series.

CO:4 K:4 14. (a) With the data given below, Calculate the Price Index and Quantity Index by Fisher's Ideal Formula and then verify that Fishers ideal formula satisfies the factor reversal test.

Commodity	Base year		Current year	
	Price(Rs.)	Quantity (Kg)	Price(Rs.)	Quantity (Kg)
A	56	72	50	26
B	32	107	30	83
C	41	62	28	46

(OR)

(b) Calculate Fisher's Quantity Index from the following data and show that it satisfies Time Reversal Test :

Commodity	Base year		Current year	
	Price	Value	Price	Value
P	10	200	12	300
Q	8	108	10	220
R	20	160	25	250
S	18	144	20	140
T	35	280	30	300

CO:5 K:5 15. (a) A machine is designed to produce insulating washers for electrical devices of average thickness of 0.025cm. A random sample of 10 washers was found to have an average thickness of 0.024cm with a standard deviation of 0.002cm. Test the significance of the deviation. Value of t for 9 degrees of freedom at 5% level is 2.262.

(OR)

(b) A company keeps records of accidents. During a recent safety review, a random sample of 60 accidents was selected and classified by the day of the week on which they occurred.

Day	MON	TUE	WED	THU	FRI
No.of accidents	8	12	9	14	17

Test whether there is any evidence that accidents are more likely on some days than others.

PART – C (5 X 8 = 40 Marks)

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

Answer should not exceed 500 words.

CO:1 K:4 16. (a) Find the A.M and Median from the following data:

Weights in (Kgs.)	35	40	45	50	55	60
Number of men :	12	18	24	16	6	4

(OR)

(b) Find the A.M and Median from the following frequency distribution:

Class :	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
F :	3	7	3	17	23	27	18	12	6	4

CO:2 K:3 17. (a) The weekly salaries of a group of employees are given in the following table. Find the mean and standard deviation of the salaries.

Salary (in Rs.)	75	80	85	90	95	100
No.of persons	3	7	18	12	6	4

(OR)

(b) Obtain the two regression lines from the following data
n=70; $\Sigma x = 80$; $\Sigma y = 60$; $\Sigma x2 = 1680$ $\Sigma y2 = 320$ $\Sigma xy = 480$

CO:3 K:4 18. (a) From the following data calculate the 4 yearly moving average and determine the trend values.

Year :	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Value :	50	36.5	43	44.5	38.9	38.1	32.6	41.7	41.1	33.8

(OR)

(b) Elaborate the methods of measuring the trend in a time series.

CO:4 K:5 19. (a) Construct the cost of living index number from the following group data :

Group	Weights	Group index number for a given year
Food	47	247
Fuel & Light	7	293
Clothing	8	289
House rent	13	100
Miscellaneous	14	236

(OR)

(b) The following table gives price and quantities of four commodities A, B, C, and D for the years 2005 and 2008. Calculate the price Index for 2008 with 2005 as base by using Marshall – Edgeworth method. Compare this index with Laspeyre's index number.

Commodity	2005		2008	
	Price	Quantity	Price	Quantity
A	40	10	50	7
B	20	5	30	8
C	30	6	40	10
D	10	9	20	10

CO:5 K:5 20. (a) There are three main brands of a certain powder, A set of 120 sample values is examined and found to be allocated among four groups (A, B,C and D) and three brands (I, II, III) and shown here under.

Brands	Groups			
	A	B	C	D
I	0	4	8	15
II	5	8	13	6
III	18	19	11	13

Is there any significant difference in brands preference? Answer at 5% level, using one-way ANOVA.

(OR)

(b) Describe the methods of Hypothesis testing.