



K24U 1743

Reg. No.: .....

Name : .....

**Second Semester B.Sc. AI & ML Degree (CBCSS – OBE-Regular)  
Examination, April 2024  
(2023 Admission Onwards)  
Complementary Elective Course  
2C02STA AIML : STATISTICAL METHODS**

Time : 3 Hours

Max. Marks : 40

**PART – A  
(Short Answer)**

Answer **all** questions from this Part. **Each** question carries **1** mark. **(6×1=6)**

1. When can you say that a correlation is positive ?
2. Define scatter diagram.
3. At what condition, the regression line is unique ?
4. Define index number.
5. What do you mean by 'weights' in the construction of index numbers ?
6. Define the term 'trend'.

**PART – B  
(Short Essay)**

Answer **any six** questions from this Part. **Each** question carries **2** marks. **(6×2=12)**

7. Distinguish between linear and non-linear correlation.
8. Define Karl Pearson's coefficient of correlation.
9. What is the relation between regression coefficients and the correlation coefficient ?
10. Explain the regression equation of Y on X.
11. Write down any two limitations of index numbers.
12. Obtain Fisher's index numbers.
13. What are the components of time series ?
14. State any two use of studying trends.

P.T.O.



PART – C  
(Essay)

Answer **any four** questions from this Part. **Each** question carries **3** marks. **(4×3=12)**

15. Write any three features of Spearman's correlation coefficient.
16. Calculate Spearman's coefficient of correlation between marks assigned to ten students by Judges X and Y in a certain competitive test as shown below :

S. No.	1	2	3	4	5	6	7	8	9	10
Marks by Judge X	52	53	42	60	45	41	37	38	25	27
Marks by Judge Y	65	68	43	38	77	48	35	30	25	50

17. Explain the steps to graphing regression lines.
18. In a correlation study the following values are obtained.

Mean :	X	Y
Standard Deviation :	65	67
Coefficient of Correlation :	2.5	3.5

Find the two regression equations that associated with the above values.

19. What do you meant by cost of living index number ? What are its use ?
20. Explain the moving average method for measuring trend of a time series.

PART – D  
(Long Essay)

Answer **any two** questions from this Part. **Each** question carries **5** marks. **(2×5=10)**

21. The following table gives indices of industrial production of registered unemployed (in hundred thousand). Calculate the value of the Karl Pearson's coefficient of correlation.

Year	2004	2005	2006	2007	2008	2009	2010	2011
Index of Production	100	102	104	107	105	112	103	99
Number of Unemployed	15	12	13	11	12	12	19	26



22. From the following data, calculate the regression equations taking deviation of items from the mean of X and Y series.

X: 6 2 10 4 8

Y: 9 11 5 8 7

23. Explain Laspeyres Method. Construct the index number of price from the following data :

Year	2006	2006	2007	2007
Commodity	Price	Quantity	Price	Quantity
A	2	8	4	6
B	5	10	6	5
C	4	14	5	10
D	2	19	2	13

24. The sale of commodity in million tonnes varied from January to December 2011 in the following manner.

280 300 280 280 270 240  
230 230 220 200 210 200

Fit a trend line by the method of semi-averages.

---