



QP CODE: 26802017



Reg No :

Name :

INTEGRATED M Sc DEGREE EXAMINATION APRIL 2026

Second Semester

INTEGRATED M Sc BASIC SCIENCES - STATISTICS

CORE - IST2CR02 - APPLIED STATISTICS

2020 Admission Onwards

2385586D

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. What is meant by curve fitting?
2. Mention any two situations that we use rank correlation method.
3. Write down the expression for the angle between two lines of regression.
4. what is the meaning of $R_{1.23} = 1$?
5. Define Laspeyer's and Paaschee's index numbers.
6. What is circular test?
7. Explain how can we convert chain index number to fixed base index number.
8. Define irregular variation.
9. Explain method of least squares.
10. Explain link relative method.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. Is there any correlation between X and Y?
X : 200 270 340 310 400
Y : 150 162 170 180 180
12. Explain the term coefficient of correlation.





13. Find $R_{1,23}$ for the random variables X_1, X_2, X_3 , it is given that $r_{12} = 0.8$, $r_{23} = r_{31} = 0.6$.
14. Explain characteristics of index numbers.
15. Explain different types of index numbers.
16. Explain construction of cost of living index number.
17. Define time series analysis and give the uses of time series analysis.
18. Explain measurement of cyclical variation.

(6×2=12 weightage)

Part C (Essay Type Questions)

Answer any **two** questions.

Weight **5** each.

19. How can you use scatter diagram to obtain an idea of the extent and nature of the correlation coefficient?
20. For the variables x_1, x_2 and x_3 , it is given that $\sigma_1^2 = \sigma_2^2 = \sigma_3^2 = 3$, $r_{12} = 0.7$, $r_{23} = r_{31} = 0.5$
Find i) $r_{23,1}$ ii) $R_{1,23}$ and iii) $b_{13,2}$
21. i) Write a short note on splicing.
ii) Price indices upto 1983 were calculated with 1980 as base. In 1984 the system of calculation was revised and 1984 was chosen as base. The indices from 1980 to 1984 of the old series and 1984 to 1987 in the new series are given.
a) Splice the old series to the new.
b) Splice the new series to the old.

Year	1980	1981	1982	1983	1984	1985	1986	1987
Old indices	100	96	105	108	115			
New indices					100	110	108	123

22. Explain measurement of cyclic variation and irregular variation.

(2×5=10 weightage)

