

U.G. 6th Semester Examination - 2021**STATISTICS****[HONOURS]****Course Code : STAT-H-CC-14-P****(Multivariate Analysis and Nonparametric Methods)****[PRACTICAL]**

Full Marks : 25(20+5)

Time : 2 Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.**Notations and symbols have their usual meanings.*

1. Suppose the random vector (X_1, X_2, X_3) has the covariance matrix

$$\Sigma = \begin{bmatrix} 1 & -2 & 0 \\ -2 & 5 & 0 \\ 0 & 0 & 2 \end{bmatrix}$$

The corresponding eigenvalues are 5.8285, 2.0 and 0.1716. Obtain the three principal components. 5

2. A researcher is interested in comparing the prices of houses in four rural towns. She obtains data on three recent sales from each town and ranks the observations from lowest to highest. The ranks are

presented in the table below:

Town A	Town B	Town C	Town D
7	1	4	7
11.5	2	9.5	9.5
7	3	5	11.5

Find the value of the Kruskal-Wallis test statistic.

What is your conclusion from this value? 5

3. Practical Note Book 5
4. Viva Voce 5

[Internal Assessment: 5]

[Turn over]