

QP CODE: 26801758



Reg No :

Name :

INTEGRATED M.Sc. DEGREE EXAMINATION, APRIL 2026

Eight Semester

INTEGRATED M.Sc. BASIC SCIENCES-STATISTICS

CORE - IST8CR04 - DATA ANALYTICS USING R

2020 Admission Onwards

EA420339

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. Define Cumulative distribution function.
2. Write the R program code for fitting Lognormal distribution.
3. Define one sample K-S test statistic.
4. What is the R code used for plotting P-P plot?
5. What do you meant by two sample t test?
6. Write the test statistic used for testing the equality of two population means.
7. What are the disadvantages of logistics regression?
8. List the R commands that give density function.
9. Define Bootsrap confidence interval.
10. Define EM algorithm.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. Write R program code for sampling data from a vector.
12. Write a note on estimation of parameters using method of moments.





13. Fit a normal distribution and test for goodness of fit.

Class	f
00-100	6
100-200	24
200-300	60
300-400	100
400-500	232
500-600	264
600-700	240
700-800	120
800-900	85
900-1000	56
1000-1100	32
1100-1200	15
1200-1300	6

- 14.

Is there any difference between the median values for the sets of treatment data for the 12 groups given below. (for 5% level of significance $\alpha/2=2$ and $\alpha^*/2 = 10$)

Treatment 1	2.5	3.5	2.9	2.1	6.9	2.4	4.9	6.6	2	2	5.8	7.5
Treatment 2	4	5.6	3.2	1.9	9.5	2.3	6.7	6	3.5	4	8.1	19.9

15. Fit an exponential curve using R program.

X	2	3	4	5
Y	27.8	62.1	110	161

16. Write a note on Principal Component Analysis.
17. Generate a Binomial(50,0.2) random variable.
18. Briefly explain Monte Carlo Markov Chain.

(6×2=12 weightage)

Part C (Essay Type Questions)

Answer any **two** questions.

Weight 5 each.

19. An entomologist studying morphological variation in species of mosquito recorded the following data on body length: 1.2 1.4 1.3 1.6 1.0 1.5 1.7 1.1 1.2 1.3.
Compute all the measures of dispersion.
20. Explain Factor analysis.





21. a) Write a note on Inverse transformation method.
b) Explain how to generate random variable using inverse transformation method by an example.
22. a) Write the applications of MCMC methods.
b) Describe Random walk.

(2×5=10 weightage)

