



K23P 1254

Reg. No. :

Name :

I Semester M.Sc. Degree (CBSS – Regular) Examination, October 2022
(2022 Admission)

STATISTICS WITH DATA ANALYTICS
MST1C04 : Statistical Programming Using R

Time : 3 Hours

Max. Marks : 80

PART – A

(Answer **all** questions. **Each** question carries 2 marks.)

1. Explain different methods for reading data into R.
2. Write the syntax of if else command in R. Give one example.
3. Write an R program for the following matrix output.

$$A = \begin{bmatrix} 1 & 2 & 3 & 4 \\ 5 & 6 & 7 & 8 \end{bmatrix}$$

4. Write an R program to generate a random sample of size 100 from a distribution with $F(x) = x^3$, $0 < x < 1$ using inverse transform method.
5. Illustrate the method of simple random sampling with and without replacement.
6. Demonstrate a user-defined function for obtaining a systematic sample.
7. Explain the function t test in R.
8. When do we use jackknife resampling method ?

(8×2=16)

P.T.O.



PART – B

(Answer **any four** questions. **Each** question carries **4** marks.)

9. Illustrate the use of for loop and while loop with the help of an example.
10. Write a note on various matrix operations in R.
11. Obtain a rough plot of pdf and cdf of binomial distribution in R with suitable values for the parameters n and p. Comment on the distribution.
12. Describe central limit theorem with an example.
13. Explain the implementation of stratified random sampling in R.
14. Explain the concept of bootstrapping. (4×4=16)

PART – C

(Answer **any four** questions. **Each** question carries **12** marks.)

15. Explain the methodology to obtain descriptive statistics for a data. What are the different graphics in R ?
 16. i) What is the difference between built-in and user-defined functions in R ? Explain with the help of examples.
ii) Write an R-function to find the largest of two numbers.
 17. Describe various procedure of generating random samples from standard distributions.
 18. Compare the efficiency of estimators under simple random sampling and stratified random sampling.
 19. Explain the test for mean in parametric and nonparametric setup in the following cases.
 - i) One sample
 - ii) Independent two samples
 - iii) Paired samples.
 20. Elaborate the difference between test for significance of means in one-way ANOVA and two-way ANOVA. When do we use Bartlett's test ? (4×12=48)
-