

[This question paper contains 2 printed pages.]

Sr. No. of Question Paper : 2157

Your Roll No.....

Unique Paper Code : 32373902

Name of the Paper : Statistical Data Analysis Using R

Name of the Course : B.Sc. (Hons.) Statistics : CBCS – Skill Enhancement Course

Semester : III

Duration : 2 Hours

Maximum Marks : 50

**Instructions for Candidates**

1. Write your Roll No. on the top immediately on the receipt of this question paper.
2. Attempt **all** questions from **Section A** and **two** questions each from **Section B** and **Section C**.
3. Write R codes for each question given in **Section B** and **C** along with other question related answers.

**Section A**

1. (a) A command used for “logarithm of x with base n” is \_\_\_\_\_ .  
(b) R code used to append an observation to a vector L is given by \_\_\_\_\_ .  
(c) Horizontal line can be drawn using a command \_\_\_\_\_ (h = value).  
(d) Spline command is used in R for drawing a \_\_\_\_\_ curve.  
(e) The following set of R codes  
length (marks) = 5  
marks  
for a vector marks = c(9, 8, 7, 10) produce the output as \_\_\_\_\_ . (1×5)

P.T.O.

2. (a) If  $x$  is a vector of length  $n$ , write R commands to calculate  $\frac{1}{n} \sum_1^n |x_i - \bar{x}|$ .
- (b) What is the significance of having a plotting character (pch) in R ?
- (c) Write  $P(X = x)$  for  $x = 0, 1, 2, 3, 4, 5$  when  $\lambda = 1$  and  $X \sim \text{Poisson}(\lambda)$ .
- (d) Write the use of summary and table function used in R.
- (e) Write the output of the following R Codes :
- ```
p <- c(32,54,38,44)
x <- c(10,20,30,40,50,60,70)
y <- cut(p, break s=x)
```
- (2×5)

### Section B

3. Draw a histogram for a grouped frequency distribution with unequal class intervals. (7.5)
4. Given the frequency distribution  $x_i|f_i$ , draw less than and more than ogives in two different plots, when window is divided into two parts. (7.5)
5. (i) Draw frequency polygon curve for a data given as a vector  $r$ .
- (ii) For a given vector, draw a pie chart with the initial angle 60 degrees and it is in anti-clockwise direction. (7.5)

### Section C

6. Write R code for paired t-test. Also interpret the results as obtained in R. Further R codes for mean, variance, median and mode for both the samples used in the above t-test. (10)
7. Fit a binomial distribution for given  $x_i|f_i$ , ( $i = 1, 2, \dots, 6$ ) and also test the goodness of fit. (10)
8. For the given vectors  $x$  and  $y$ , fit a line of regression and plot a graph. (10)