[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)

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 ~ 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, breaks=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,...,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)