

Unique Paper Code: 32373902

Name of the Course: B.Sc. (Hons.) Statistics

Name of the Paper: Statistical Data Analysis Using R (SEE-2)

Semester: III

Duration: 2 hours

Max Marks: 50

Instructions for candidates

Section A is compulsory. Attempt any Three questions from Section B. Write R codes for each question given in Section B along with other question related answers.

Section A

- 1 (a) To read data from console in R we use _____ 1
- (b) For a given vector $x = c(3, 1, 8, 5, 4, 8, 9, 7)$, the values obtained by using `cummax(x)` are _____ 1
- (c) A command used to extract 2nd to 6th element from a vector x of 9 elements is _____ 1
- (d) Graphical window in R can be closed using the instruction _____ 1
- (e) A command/R code `abline(v = value)` is used for drawing _____ line. 1
- (f) What are high level and low level plots, why are they so called? Name two each of high level and low level plot. $1\frac{1}{2}$
- (g) Write a statement/command to install a package to be used in R. Also, loads the same package for the current session of R. $1\frac{1}{2}$
- (h) Write the output of the following R Codes: $1\frac{1}{2}$
`u <- seq(5,90,20)`
`u`
- (i) Write R codes to obtain $P(X \leq 3)$, where $X \sim \text{Binomial}(n = 10, \text{prob.} = 0.6)$. $1\frac{1}{2}$
- (j) Write the use of `summary` and `table` function used in R. $1\frac{1}{2}$

Section B

- 2 For a given raw data, obtain the grouped frequency data with 6 class intervals. Also obtain the mid value for each class and the cumulative frequencies. $12\frac{1}{2}$
- 3 Given the frequency distribution $x_i|f_i$, using only `cumsum` function draw both less than and more than ogives having equal class intervals, in a single plot and also find the median. Also draw another plot for a histogram. $12\frac{1}{2}$
- 4 Write a R- code for revealing the effect of increasing the values of parameter λ in a Binomial distribution. $12\frac{1}{2}$
- 5 Write a R-code to generate a random sample of size 150 following Normal distribution with mean =10 and variance= 4. Use the generated sample to compute the 90% and 95% confidence interval for mean. $12\frac{1}{2}$
- 6 For any assumed data on X and Y, Write an R code to estimate Y, where $Y = a + b X + c X^2$. $12\frac{1}{2}$
Also, plot the curve for estimated values. Also write a code to
a) predict Y for certain value of X.

b) obtain the residuals as well as fitted values