

Unique Paper Code : **62353505**
 Name of the Paper : **SEC-3 The Statistical Software: R**
 Name of the Course : **B.A. (Prog.)**
 Semester : **V**
 Duration : **2 Hours**
 Maximum Marks : **38**

Attempt any four questions. All questions carry equal marks.

1. Answer the following

If $x = c(5L, 6L)$, then `class(x)` will give _____.
 If $b = c(50,45,39,44,30,38,45,39,15,45)$, then `sort(b)` will sort the data in ascending order. (T/F)
 If $a = 9$, $b = 6$ then `print(a%%b)` will give _____.
 Write the R syntax to find $\sin(60^\circ)$.
 Write the R syntax to find $\log_5 15$.
 If $x = c(2,2,13)$, $y = c(2,0,4)$ then `print(x^y)` will give _____.
 If $a = c(TRUE, TRUE, FALSE)$, $b = c(FALSE, TRUE, FALSE)$ then `print(a&& b)` will give _____.
 The operator for matrix multiplication in R is _____.
 The plot function (`plot()`) when use to a factor data will produce _____.
 Summary function in R will provide us a total of _____ statistical standards.

2. Find the stem and leaf plot for $x = 12, 34, 65, 13, 23, 22.5, 15.5$ and also write it's output.

What is the difference between `table()` and `fable()` command
 Is it possible to find pie chart for $c = c(1, -4, 2, 3, 1)$? If yes, find it, otherwise state the reason.
 What the graph of Box-Whisker plot represents? Explain with diagram.
 Mention any 2 methods to check whether the given data is of class "data frame" or not.

3. The following is a data frame by the name "df"

Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
5.1	3.5	1.4	0.2	setosa
4.9	3.1	1.5	0.1	setosa
5.6	2.7	4.2	1.3	versicolor
5.0	3.3	1.4	0.2	setosa
5.6	3.0	4.5	1.5	versicolor
5.7	2.6	3.5	1.0	versicolor
5.9	3.0	5.1	1.8	virginica
6.1	2.6	5.6	1.4	virginica
5.6	2.8	4.9	2.0	virginica

- i. How to see the structure of the df?
- ii. Write the code to plot the bar chart for the **Species**.
- iii. Write the code for pair plot of the numeric variables.

- iv. Write the code to compute the correlation co-efficient between **Sepal.Length** and **Sepal.Width**.
- v. Select the rows 2,5,7 and store in dfl.

4. Answer the following

Write the command to convert matrix into data frame and vice-versa.

Differentiate between data frame and list.

Difference between ls(), str() and ls.str() commands.

Differentiate the purpose of qqnorm and qqplot.

Explain the use of save and load command with example.

5. Consider the following table:

Age	Rural Male	Rural Female	Urban Male	Urban Female
50-54	11.7	08.7	15.4	08.4
55-59	18.1	11.7	24.3	13.6
60-64	NA	20.0	NA	19.3
65-69	41.0	30.9	54.6	35.1
70-74	66.0	54.3	71.1	50.0

Write the R codes to store the above data in a data frame. Replace the NA's by the average of each column. Find the mean and standard deviation of each row and write command to make a pie chart and cleveland dot chart.

6. Study the following R codes

a = 1 : 12

b = -13 : -24

A = matrix(a, ncol = 4, byrow = T)

B = matrix(b, nrow = 3, byrow = F)

C = A+B

D = t(C)

E = A[2,4]+B[3,4]

F = cbind(A,B)

From the above codes write the value of A, B, C, D, E and F.