

ST. ANN'S COLLEGE OF ENGINEERING AND TECHNOLOGY, CHIRALA
DEPARTMENT OF CSE

FAQ'S

SUB: Statistics with R programming

YEAR-SEM-BRANCH:II-I-CSE

AY:2017-18

UNIT-1

- 1) Explain about the matrix data structure along with all possible operations using examples.
- 2) Define a data.frame and distinguish it from a matrix object in R.
- 3) Explain about List data structure and give examples.
- 4) Explain about Functions, Classes in R and differentiate different types of class systems in R.
- 5) Write R code to tabulate a function $f(x) = 3x^2 + 2x + 1$ in the interval $(-1, 1)$ in steps of 0.2.

UNIT-2

- 1) Explain the functioning of `lapply()` and `tapply()` in a R program with one example each.
- 2) What is Recursion? Write an R program to implement Quick sort on the vector `Value <- c(9, 6, 2, -1, 0, 20, 8, 7, 1)` using recursive approach.
- 3) What is Binary search tree? Write an R program to create a binary search tree and insert a new element into the existing binary search tree.
- 4) Explain about different types of R operators using suitable examples.
- 5) Write R code to plot the function $f(x) = x$ if $x < \frac{1}{2}$ and $(1-x)$ if $\frac{1}{2} < x < 1$ and 0 elsewhere by using **if else** command.

UNIT-3

- 1) Write R code to obtain the probability of occurrence of exactly one event from n independent events using `prod()` function.
- 2) Explain about sorting functions in R? Illustrate the usage of `order()` function to sort a data.frame according to different columns.
- 3) Explain about Linear algebra operations on vectors and matrices using suitable examples.
- 4) Write an R function to calculate the vector cross product of the given vectors.

UNIT-4

- 1) Write an R program to create two graphs $\sin(x)$ and $\cos(x)$ and plot them in an array of two rows.
- 2) Write an R program to plot the function $f(x)=\sin(x)$ in the interval $(-3,3)$ in steps of 0.1. The point character of the plot is to be triangle joined with the lines.

UNIT-5

- 1) Write R code to generate the probability distribution table for number of successes from a binomial distribution where $n=5$ and probability of success in each trial is 0.25.
- 2) Compute the correlation coefficient for the following data
X: 68 64 75 50 64 80 75 40 55 64
Y: 62 58 68 45 81 60 68 48 50 70

UNIT-6

- 1) The sales data of an item in six shops before and after a special promotional campaign are as under:
Shop: A B C D E F
Before campaigns: 53 28 31 48 50 42
After campaigns: 58 29 30 55 56 45
Can the campaign be judged to be a success?
- 2) Heights (in cm) of father and son are given as follows
Father(x):150 152 155 157 160 161 164 166
Sons(y): 154 156 158 159 160 162 161 164
Fit a regression line predict the height of son given the height of father.
- 3) In a test given to two groups of students the marks obtained are as follows
Group1: 18, 20, 36, 50, 49, 36, 34, 49, 41
Group2: 28, 29, 26, 35, 30, 40, 44
Examine the significance of differences between the means of marks scored by students of the above groups.