

## Question Bank (8M)

### UNIT-I (CO1)

1. A. List out various data types available in R Language?  
B. Illustrate with an example on how vectors are created?  
C. Write a short note on
  - (i) nchar()
  - (ii) length()
  - (iii) Factor Vectors
2. A. Illustrate with an example NA and NULL?  
B. Write a short note on R Studio Tools?  
C. Define variable and write a short note on it. How do you assign value to variable in R and How do you remove variable.
3. A. Write a short note on different options in R Studio.  
B. Write a short note on installing and uninstalling of R Packages.  
C. Illustrate with an example how data frames work in R
4. A. With an example write a short note on Lists.  
B. Write a short note matrices in R.  
C. Explain with syntax how do you read data into R.
5. A. Write a short note on Base Graphs.  
B. Write a short note on ggplot2.  
C. Define function and with an example explain functions with arguments.
6. A. With examples explain the concept of control statements in R.  
B. With examples explain the concept of Loops in R.  
C. Write a short note on command line interface.

### UNIT-II

1. Write a short note on apply(), lapply(), sapply, mapply and other apply() with examples.
2. With examples write a short note on aggregate().
3. Write a short note on plyr.
4. With examples explain in detail about ddply, llply
5. Write a short note on data.table.
6. Data.table vs data.frame
7. With examples explain in detail about key.
8. \* With examples explain in detail about cbind() and rbind().
9. Write a short note on melt() and dcast().
10. \* With examples explain in detail about paste, sprintf, extracting text and regular expressions.
11. Explain in detail about math() in R.
12. With examples explain in detail about cumulative sums and products, minima and maxima.
13. With examples explain in detail about sorting, set operations.

### UNIT-III

1. A. Write a short note on `rnorm()` with examples.  
B. With examples explain briefly about `dnorm()`.  
C. Write the code to plot “random normal variables and their densities”, which results in a bell curve.
2. A. Write a short note on Normal Distribution.  
B. With examples explain in detail about Binomial distribution.
3. A. With examples write a short note on `rbinorm()`  
B. With examples write a short note on `pbinorm()` and `qbinorm()`.  
C. Write a short note on Poisson distribution.
4. A. Write a short note on `summary()` with examples.  
B. What is the difference between `mean()` and `weighted.mean()`.  
C. With examples explain in detail about `quantile()`.
5. A. Write a short note on correlation and covariance.  
B. Write a short note on t-tests.
6. Write a short note on ANOVA.
7. Problems related to distributions.

### UNIT-IV

1. Write a short note on Linear Models with examples.(Simple Linear, Multiple Linear, Logistic, Poisons)
2. Problems related Linear Models.
3. Write a short note on Non-Linear Models with examples.(Splines, GAM, Decision tree and random forest)
4. Deciscion tree vs random forest
5. Problems related Non-Linear Regression
6. Write a short note on Clustering with examples.(PAM, K-means, Hierarchical clustering)
7. With examples explain in detail about Time Series.

Kmeans – don’t find outliers

Hierarchial – no k value