

1. Say True or False for the below statements:

- a. Base R packages installed automatically? **No**
- b. The number of values in each Elements of a list, should be equal. **NO**
- c. Data frames and matrices are two dimensional however the array is multidimensional. **yes**

2. What is Recycling of elements in a vector? Give an example of recycling of elements.

OR

Explain different data types in R with examples.

When applying an operation to 2 vectors that requires same length R will automatically recycles or repeats.

Ex:  $c(1,2,3)$  ,  $c(4,5,6,7,8)$   
 $c(1,2,3,1,2)+(4,5,6,7,8) = 5,7,9,8,10$

3. What should be the output of the following Script? **[1] 0 1 1**

```
v <- c( 2,5.5,6)
t <- c(8, 3, 4)
print(v%%t)
```

4. Write following user defined functions using R (any 3):

- a. increment() with 2 arguments “number” and “by”. Which increments a no. by 1  
**inc(x)<-1 by Rows;**
- b. printnumbers() which can print nos. from 1 to 20  
**1:20**
- c. printletters() which prints alphabets from “A” TO “H”  
**LETTERS[1:8]**
- d. mysort() which can sort the values of a vector in ascending order
- e. mydivision() which returns quotient and remainder

5. Write a R code for the following :

- a. Create a dataframe named “mydf “ with 4 columns “name”, “age”, “salary” and “hobby” and 6 observations.

```
mydf.data=data.frame(name=c("A","B","C","D","E","F"),  
                      age=c(1,2,3,4,5,6),  
                      salary=c(10,20,30,40,50,60),  
                      hobby=c("q","w","r","t","y","u"))  
print(mydf.data)
```

- b. Change the column names to “empname”, “empage”, “empsalary” and “emphobby”

```
colnames(mydf.data)=c('empname','empage','empsalary','emphobby')  
print(mydf.data)
```

- c. Save/Export the dataframe in .csv and .xlsx format

```
write.table(mydf.data,file = "assesmet.csv",sep="\t",row.names = FALSE)  
  
library(rio)  
export(mydf.data,"assement.xlsx")  
  
list.files()
```

6. Import the dataset named “grades.csv” and perform any 5 basic statistics operations using R.