Q1 = Write the steps in creating and running an R script

1 = you can open a new empty script by clicking the new file icon in the
    the upper left of the main RStudio toolbar.
2 = This icon a white square with a white plus sign in a green circle
3 = Clicking the icon New File Menu
4 = Click the R Scipt menu option and the script editor will open an empty
    Script
5 = Once the new script opens in the Script Editor panel, the script is ready
for text entry

Q2 = State the features of R language

1 = It is open source
2 = Strong Graphical Capabilities
3 = A Wide Selection of Packages
4 = Cross platform support
5 = Extremely compatible
6 = Fast Calculation

Q3 = Write expression in R

1) = e^4 + log2

```
r <- exp(4) + log10(2)
print(r)
```

2) = 24 x 53

```
print(24*53)
```

3) = log10 base = 2

```
print(log2(10))
print(log(10 ,base = 2))
```

4) = log2 base = 10

```
print(log10(2))
```

Q4 = Differentiate R while Comparing with python programing languages

python - 1) Python is a general-purpose language that is used for the
deployment and development of various projects
         2) Python is better suitable for machine learning, deep learning,
and large-scale web applications.
         3) Python has a lot of libraries
         4) Python has a simple syntax and is easy to learn

5) Python's statistical packages are less powerful.

R - 1) R is a statistical language used for the analysis and visual representation of data.
2) R is suitable for statistical learning having powerful libraries for data experiment and exploration
3) R has fewer libraries compared to Python
4) R has a relatively complex syntax
5) R's statistical packages are highly powerful.

Q5 = Elaborate the following R objects

1) Vector

```
s <- c('apple','red',5,TRUE)
print(s)
```

2) Data Frame

```
emp.data <- data.frame(
  emp_id = c (1:5),
  emp_name = c("Rick","Dan","Michelle","Ryan","Gary"),
  salary = c(623.3,515.2,611.0,729.0,843.25),

  start_date = as.Date(c("2012-01-01", "2013-09-23",
"2014-11-15","2014-05-11",
                         "2015-03-27")),
  stringsAsFactors = FALSE
)
print(emp.data)
```

3) Matrix

```
rownames = c("row1", "row2", "row3", "row4")
colnames = c("col1", "col2", "col3")
P <- matrix(c(3:14), nrow = 4, byrow = TRUE, dimnames =
list(rownames,colnames))
print(P)
```

4) List

```
list_data <- list(c("Jan","Feb","Mar"), matrix(c(3,9,5,1,-2,8), nrow = 2),
list("green",12.3))
print(list_data)
```

Q6 = The price of one kg of rice is RS. 40.75 and one Kg of sugar is RS. 30 Write R Program to get the total amount of 2Kg rice and 5 kg sugar purchase

```
sugar <- 30
rice <- 40.75
amount <- sugar*5 + rice*2
print(amount)
```

Q7 = Write the loop structure with conditional statement R with suitable example

repeat loop

```
v <- c("Hello","loop")
cnt <- 2
repeat {
  print(v)
  cnt <- cnt+1

  if(cnt > 5) {
    break
  }
}
```

while loop

```
v <- c("Hello","while loop")
cnt <- 1
while (cnt < 7) {
  if ((cnt %% 2) == 0){
    print(v)
  }
  cnt = cnt + 1
}
```

for loop

```
v <- c(1:15)
for ( i in v) {
  if ((i %% 2) == 0){
  print(i)
  }
}
```

Q8 = Hoe to create data frame using the following data
Height = 66 , 62, 63, 70, 74
GPA = 3.80, 3.78, 3.88, 3.72, 3.69

```
data <- data.frame(
  Height = c(66,62,63,70,74),
  GPA = c(3.80,3.78,3.88,3.72,3.69)
```

```
)
print(data)
```

Q9 = How can we present the missing value in CSV and how to use in R

In R, missing values are represented by the symbol NA

Q10 = you have two dataframe "M" and "N". M has 34 rows and N has 46 rows how will merge the data frame what will the number of rows in the resultant data frame

```
df <- rbind(M,N)
print(df)
```

In this total number of row is 80

Q11 = Create an Array with name "My sales" with 30 observation ussing following methods
a) By using the array woth dimension 3 ,5 and 2
b) By using vector method

```
vect <- c(1:30)
MySales <- array(vect ,dim = c(3,5,2))
print(MySales)
```