#1 Numeric Functions in R

```
> number <- 5
> abs(number)
[1] 5
> sqrt(number)
[1] 2.236068
> ceiling(number)
[1] 5
> floor(number)
[1] 5
> trunc(number)
[1] 5
> round(number,digits = 2)
[1] 5
> signif(number,digits = 2)
[1] 5
> cos(number)
[1] 0.2836622
> sin(number)
[1] -0.9589243
> tan(number)
[1] -3.380515
> log(number)
[1] 1.609438
> log10(number)
[1] 0.69897
> exp(number)
[1] 148.4132
```

#2 Functions

```
v <- c(1,2,3,4,5,6,7,8,9,10)
r <- range(v)
M <- max(v)
m <- min(v)
me <- mean(v)
mi <- median(v)
sd <- sd(v)
va <- var(v)
```

OUTPUT:

```
> print(paste("range :=",r))
[1] "range := 1"  "range := 10"
>       print(paste("maximum :=",M))
[1] "maximum := 10"
```

```
>       print(paste("Minimum :=",m))
[1] "Minimum := 1"
>       print(paste("mean :=",me))
[1] "mean := 5.5"
>       print(paste("median :=",mi))
[1] "median := 5.5"
>       print(paste("standerd deviation :=",sd))
[1] "standerd deviation := 3.02765035409749"
>       print(paste("variance :=",va))
[1] "variance := 9.16666666666667"
```

#3 Charecter Functions

```
str <- as.character(readline(prompt = "Enter a string : "))
S <- toupper(str)
s <- tolower(str)
print(paste("Uppercases of given string is :"))
print(S)
print(paste("Lowercases of given string is :"))
print(s)
ss <- substr(str,3,8)
print(paste("one of substring of the given string :"))
print(ss)
str1 <- str
substr(str1,1,7) <- "abesdua"
print(str1)
strsplit(str,"")
sub("ed","de",str,ignore.case = FALSE,fixed = FALSE)
```

OUTPUT:

```
Enter a string : KLdeemedtobeUniversity
> S <- toupper(str)
> s <- tolower(str)
> print(paste("Uppercases of given string is :"))
[1] "Uppercases of given string is :"
> print(S)
[1] "KLDEEMEDTOBEUNIVERSITY"
> print(paste("Lowercases of given string is :"))
[1] "Lowercases of given string is :"
> print(s)
[1] "kldeemedtobeuniversity"
> ss <- substr(str,3,8)
> print(paste("one of substring of the given string :"))
[1] "one of substring of the given string :"
> print(ss)
[1] "deemed"
```

```
> str1 <- str
> substr(str1,1,7) <- "abesdua"
> print(str1)
[1] "abesduadtobeUniversity"
> strsplit(str,"")
[[1]]
 [1] "K" "L" "d" "e" "e" "m" "e" "d" "t" "o" "b" "e" "U" "n" "i" "v"
"e" "r" "s" "i"
[21] "t" "y"


#4 Sorting of elements

v <- c(10,4,2,5,8,6,7)
v1 <- sort(v,decreasing = FALSE)
v2 <- sort(v,decreasing = TRUE)
print(paste("before sorting : "))
print(v)
print(paste("After sorting in ascending order : "))
      print(v1)
print(paste("After sorting in descending order : "))
print(v2)

OUTPUT:

[1] "before sorting : "
[1] 10  4  2  5  8  6  7

[1] "After sorting in ascending order : "
[1]  2  4  5  6  7  8 10

[1] "After sorting in descending order : "
[1] 10  8  7  6  5  4  2

# USER DEFINED FUNCTIONS

seq(1,20,by=2)

rep(1:5,each=2)

rep(1:5,2)

rep(c(4,7,5,1),times=c(3,2,5,2))


sequence <- function(x)
{
  seq(1,x,by=2)
}
```

```
sequence(10)

equation <-function(x)
{
 y <- (x^4)+(2*(x^2))+(4*x)+1
 print(y)
}
equation(10)
equation(21)
```

OUTPUT:

```
> equation(10)
[1] 10241
> equation(21)
[1] 195448
```

--------LISTS--------

```
# a)Creating New list
reg.num <- as.integer(readline(prompt = "Enter student registration
number : "))
name <- as.character(readline(prompt = "Enter student name : "))
year <- as.integer(readline(prompt = "Enter student year of study :
"))
stdl <- list("registered_number"=reg.num,"name"=name,"yos"=year)
stdl
```

OUTPUT:

```
$registered_number
[1] 679

$name
[1] "VINAY"

$yos
[1] 3
```

```
# b)Modifying name
stdl[["name"]] <- as.character(readline(prompt = "Enter new name of
the student : "))
stdl
```

OUTPUT:

```
$registered_number
[1] 679

$name
[1] "SAI"

$yos
[1] 3
```

```
# c)Adding DOB field
date <- as.Date.character(readline(prompt = "Enter date of birth of
student : "))
stdl[["DOB"]] <- date
stdl
```

OUTPUT:

```
$registered_number
[1] 679

$name
[1] "SAI"

$yos
[1] 3

$DOB
[1] "1998-06-22"
```

```
# d)Deleting DOB field
stdl[["DOB"]] <- NULL
stdl
```

OUTPUT:

```
$registered_number
[1] 679

$name
[1] "SAI"

$yos
[1] 3
```

```
# e)Converting list into vector
myvector <- unlist(stdl)
print(myvector)
```

OUTPUT:

```
registered_number              name               yos
            "679"             "SAI"               "3"
```