REG NO:192124140

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1.Write The Commands To Perform Basic Arithmetic In R.

A)a+b

a\*b

a/b

a-b

a%b

2. Display a String on R Console.

A) s <- readline(prompt("enter the string"))

print(s)

3. Declare Variables In R And Also Write The Commands For Retrieving The Value Of

The Stored Variables In R Console.

A)s <- readline(prompt("enter the string"))

print(s)

4. Write R script to calculate the area of Rectangle.

A) l <- as.integer(readline("enter the length of the rectangle"))

b <- as.integer(readline("enter the breadth of the rectange"))

print(l\*b)

5.Write Commands In R Console To Determine The Type Of Variable

A)

typeof(v)

6.Enumerate The Process To Check Whether A Given Input Is Numeric , Integer ,

Double, Complex in R.

A)

is.numeric();

is.integer();

is.double();

is.complex();

7. Illustration of Vector Arithmetic.

A)

arithmetic operation will be done when two vectors have same length.

8. Write an R Program to Take Input From User.

Input name as “Jack” and age as 17.

The program should display the output as

“Hai , Jack next year you will be 18 years old”

A)

name <- readline(prompt="enter your name")

age <- as.integer(readline(prompt="enter your age"))

print(paste("hai",name,"next year you will be",age ,"years old"))

1. Perform Matrix Addition &amp; Subtraction in R

B **=** matrix(c(1, 2 , 5, 3, 4, 5), nrow **=** 2, ncol **=** 3)

C **=** matrix(c(2, 0, 1, 3, 4, 5), nrow **=** 2, ncol **=** 3)

print(B **+** C)

print(B - C)

1. Perform Scalar multiplication and matrix multiplication in R

A <- matrix(c(1,2,3,4,5,6),ncol=2)

B <- matrix(c(1,2,3,4,5,6),ncol=2)

print(A%\*%B)

1. Find Transpose of matrix in R.

A <- matrix(c(1:6),ncol=3)

print(t(A))

4) Perform the operation of combining matrices in R using cbind() and rbind()

functions.

name<-c("Jay","Rajiv","Juke","Jenny","lara")

age<-c(23,25,23,24,26)

gender<-c("Female","Male","Male","Female","Female")

cbind(name,age,gender)

rbind(name,age,gender)

1. Deconstruct a matrix in R

a <- matrix(c(1:6),nrow=5,ncol=2)

print(c(a))

1. Perform array manipulation in R .

vector1 <**-** c(1, 2, 3)

vector2 <**-** c(10, 15, 3, 11, 16, 12)

result <**-** array(c(vector1, vector2), dim **=** c(3, 3, 2))

print(result)

1. Perform calculations across array elements in an array using the apply() function.

sample\_matrix <- matrix(C<-(1:10),nrow=3, ncol=10)

print( "sample matrix:")

sample\_matrix

print("sum across rows:")

apply( sample\_matrix, 1, sum)

print("mean across columns:")

apply( sample\_matrix, 2, mean)

8) Demonstrate Factor data structure in R.

A)

The factor is a data structure which is used for fields which take only predefined finite number of values.

fac = factor(c("Male", "Female", "Male",

"Male", "Female", "Male", "Female"));

print(fac)

1. Create a data frame and print the structure of the data frame in R.

v1 <- c(2,3,4,5,6,7,8);

v2 <- c(3,4,5,6,7,8,9);

df <- data.frame(v1,v2);

print(df);

print(str(df))

10) Demonstrate the creation of S3 class in R.

A) s <- list(name = "gopal", age = 21, GPA = 3.5)

class(s) <- "student"

s

11) Demonstrate the creation of S4 class in R.

A)

setClass("Employee\_Info", slots=list(name="character", age="numeric", role="character"))

employee1 <- new("Employee\_Info", name = "Peter", age = 21, role = "Developer")

employee1

12) Demonstrate the creation of Reference class in R by defining a class called students

with fields – Name, Age , GPA. Also illustrate how the fields of the object can be

accessed using the $ operator. Modify the Name field by reassigning the name to Paul.

student1 <- list(name = "John", age = 21, GPA = 3.5)

class(student1) <- "Student\_Info"

student1

student1.name = "paul"

student1