Data Science for Engineers

Week 1

1. Which of the following variable names are INVALID in R? [1 mark]

   (a) 1_variable

   (b) variable_1

   (c) _variable

   (d) variable@

   Answer: a, c, d

2. The function ls() in R will [1 mark]

   (a) set a new working directory path

   (b) list all objects in our working environment

   (c) display the path to our working directory

   (d) None of the above

   Answer: b

   Consider the following code snippet. Based on this, answer questions 3 and 4.

```
1  ID = c(1, 2, 3, 4)
2
3  Patient_name = c("Ram", "Shyam", "Nandini", "Maya")
4
5  num.patient = 4
6
7  patient_list = list(num.patient, ID, Patient_name)
8
```

3. Which of the following command is used to access the value "Shyam"?

   (a) print(patient_list[3][2])

   (b) print(patient_list[[3]][1])

   (c) print(patient_list[[3]][2])

   (d) print(patient_list[[2]][2])

   Answer: c

4. The output of the code given below is

```
for (i in patient_list[1]){
    for (j in i){
        print(j)
    }
}
```

```
[1] "Ram"
[1] "Shyam"
[1] "Nandini"
[1] "Maya"
```

(a)

```
[1] 4
```

(b)

(c)

(d) Code will throw an error.

Answer: b

5. What is the output of following code? [1 mark]

```
x = 10 + 5 %% 3

print(typeof(x))
```

   (a) double
   (b) integer
   (c) list
   (d) None of the above

   Answer: a

6. State whether the given statement is True or False.
   The library reshape2 is based around two key functions named **melt** and **cast**. [1 mark]

   (a) True
   (b) False

   Answer: a

7. What is the output of following code? [1 mark]

```
A = matrix(c(9:1), 3, 3)


print(A[3, 2])
```

   (a) 6
   (b) 4
   (c) 2

(d) 8

Answer: b

Create the data frame using the code given below and answer questions 8 and 9.

student_data = data.frame(student_id=c(1:4), student_name=c('Ram','Harish','Pradeep','Rajesh'))

8. Choose the correct command to add a column named **student_dept** to the dataframe **student_data**. [1 mark]

   (a) student_datastudent_dept=c("Commerce", "Biology", "English", "Tamil")

   (b) student_data["student_dept"]= c("Commerce","Biology", "English","Tamil")

   (c) student_dept= student_data[c("Commerce","Biology","English","Tamil")]

   (d) None of the above

   Answer: a, b

9. Choose the correct command to access the element **Tamil** in the dataframe **student_data**. [1 mark]

   (a) student_data[[4]]

   (b) student_data[[4]][3]

   (c) student_data[[3]][4]

   (d) None of the above

   Answer: c

10. The command to check if a value is of numeric data type is ___. [1 mark]

    (a) typeof()

    (b) is.numeric()

    (c) as.numeric()

    (d) None of the above

    Answer: b