Provide answers to the following questions in this Google Doc (do not attach other file):

What is “list” in R?
In R programming, a list is a generic object made up of an ordered group of things. Lists are heterogeneous, one-dimensional data structures.
The list could be a list of functions, matrices, letters, vectors, or anything else.
A vector having diverse data items is called a list. In R, the list() function is used to build a list. Using the index value, R makes it possible to access the elements of a R list. In R, a list's indexing begins with 1 rather than 0. (guide and Jain)

• How to create a list containing strings, numbers, vectors and logical values in R?
We can create a list containing different data types using list() method in R. (“R - Lists”)
Example :

```
# Creating a list with mixed data types
my_list <- list( name = "Santosh", # String
age = 25, # Numeric
scores = c(85, 90, 95), # Numeric vector
is_student = TRUE # Logical value )
```

• How to name the list elements in R?
The name of list elements can be assigned by using names() functions. (Jain)
Syntax: names(x) <- value

Parameters:
x: represents an R object.
value: represents names that has to be given to elements of **x** object.

```
# Creating a named list
my_list <- list(name = "Alice", age = 25, city = "New York")
# Naming elements after creating the list
names(my_list) <- c("name", "age", "city")
# Printing the list with names
print(my_list)
```

• How to assess list elements in R?
List elements can be assessed using **indexing (`[ ]` or `[ [ ] ]`)** and **named access (`$`)** in R programming. (Sanderson)

```
my_list <- list(name = "Alice", age = 25, city = "New York")
# Accessing by index
print(my_list[[1]])     # "Alice" (direct value)
print(my_list[1])       # List with the first element
```

```
# Accessing by name
print(my_list$age)      # 25
print(my_list[["city"]])  # "New York
```

• How to manipulate list elements in R?
Manipulation means modification, addition and removal of elements in R programming. (Jain)

```
# Modification of the elements in R can be achieved as :
mylist$age<-30
# Addition of the elements in R can be achieved as :
mylist$country<-"Nepal"
# Removal of elements in R can be achieved by assigned value as Null.
mylist$city<-Null
```

• How to convert lists to vectors in R?
Lists can be converted to vectors by using unlist() method. (“How to Convert List to Vector in R”)

```
my_list <- list(a = 1, b = 2, c = 3)
# Convert list to vector
vector <- unlist(my_list)
# Print the vector
print(vector)  # Output: 1 2 3
```

Note: Your answers will be checked by Google for plagiarism and AI generated responses. Individual report comes to me and I will mind a lot if I find your answers are copied. It will also cross check the responses of each submission so be careful!

References List

guide, step, and Sandeep Jain. “R - Lists.” *GeeksforGeeks*, 11 March 2024, https://www.geeksforgeeks.org/r-lists/. Accessed 16 February 2025.

“How to Convert List to Vector in R.” *Spark By {Examples}*, 27 May 2024, https://sparkbyexamples.com/r-programming/convert-list-to-vector-in-r/. Accessed 17 February 2025.

Jain, Sandeep. “Create, Append and Modify List in R.” *GeeksforGeeks*, 30 June 2021, https://www.geeksforgeeks.org/create-append-and-modify-list-in-r/. Accessed 17 February 2025.

Jain, Sandeep. “Named List in R Programming.” *GeeksforGeeks*, 22 June 2020, https://www.geeksforgeeks.org/named-list-in-r-programming/. Accessed 17 February 2025.

“R - Lists.” *TutorialsPoint*, https://www.tutorialspoint.com/r/r_lists.htm. Accessed 16 February 2025.

Sanderson, Steven P. “How to subset list objects in R.” *R-bloggers*, 18 July 2023, https://www.r-bloggers.com/2023/07/how-to-subset-list-objects-in-r/. Accessed 17 February 2025.