**Program:**

data<-read.csv("CO2.csv") View(data)

t\_test\_conc <- t.test(data$conc, mu = 550, alternative = "less") print(t\_test\_conc)

# Specific uptake values for chilled and nonchilled groups

uptake\_chilled <- c(14.2, 24.1, 30.3, 34.6, 32.5, 35.4, 38.7, 9.3, 27.3, 35, 38.8, 38.6, 37.5, 42.4,

15.1, 21, 38.1, 34, 38.9, 39.6, 41.4,

10.5, 14.9, 18.1, 18.9, 19.5, 22.2, 21.9, 7.7, 11.4, 12.3, 13, 12.5, 13.7, 14.4, 10.6,

18, 17.9, 17.9, 17.9, 18.9, 19.9)

uptake\_nonchilled <- c(16, 30.4, 34.8, 37.2, 35.3, 39.2, 39.7, 13.6, 27.3, 37.1, 41.8, 40.6, 41.4,

44.3, 16.2, 32.4, 40.3, 42.1, 42.9, 43.9, 45.5,

10.6, 19.2, 26.2, 30, 30.9, 32.4, 35.5, 12, 22, 30.6, 31.8, 32.4, 31.1, 31.5, 11.3,

19.4, 25.8, 27.9, 28.5, 28.1, 27.8)

# Perform the Independent Samples t-test

t\_test\_uptake\_treatment <- t.test(uptake\_chilled, uptake\_nonchilled) # Print the results

print(t\_test\_uptake\_treatment) # 3

t.test(data$uptake[data$Treatment=='chilled'],data$uptake[data$Treatment=='nonchilled'],pai red = TRUE)

# 4

t.test(data$uptake[data$Type=='Quebec'],data$uptake[data$Type=='Mississippi']) ds <- data.frame(

uptake = c(10, 15, 20, 25, 30, 35, 40, 45, 50, 55),

conc = rep(c("Low", "Medium", "High"), length.out = 10)

)

ds$conc <- factor(ds$conc, levels = c("Low", "Medium", "High")) boxplot(ds$uptake ~ ds$conc,

main = "Box Plot of Uptake by Concentration", xlab = "Concentration",

ylab = "Uptake", col = "darkblue", border = "red")

**Output:**





|  |  |
| --- | --- |
| **Rubrics** | **Marks** |
| **Data Analysis (10)** |  |
| **Tool Usage (20)** |  |
| **Results (10)** |  |
| **Quiz (5)** |  |
| **Timely Submission (5)** |  |
| **Total (50)** |  |

**Result:**

Thus, the following question is executed using R programming and the output is verified successfully.