**STAT 40001/ MA 59800 Statistical Computing Fall 2017**

**Lab-2**

1. Create the following vectors using rep function in R:
2. V1= 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5

> rep(c(1,2,3,4,5),5)

[1] 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5

1. V2= 1 1 1 1 2 2 2 2 3 3 3 3 4 4 4 4 5 5 5 5 6 6 6 6

> rep(c(1,2,3,4,5,6),each = 4)

[1] 1 1 1 1 2 2 2 2 3 3 3 3 4 4 4 4 5 5 5 5 6 6 6 6

1. V3=5 10 10 15 15 15 20 20 20 20 25 25 25 25 25

> rep(c(5,10,15,20,25),times=1:5)

[1] 5 10 10 15 15 15 20 20 20 20 25 25 25 25 25

1. V4= Math, Math, CS, CS, STAT, STAT, STAT, PHY,PHY,PHY

> noquote(rep(c("Math","CS","STAT","PHY"),as.integer(c(2,2,3,3))))

[1] Math Math CS CS STAT STAT STAT PHY PHY PHY

1. Import the data below in R using scan function

2 4 5 6 7 8 9 2 3 4 5 6 77 89 45 67 8 9 0 12

> y = scan()

1: 2 4 5 6 7 8 9 2 3 4 5 6 77 89 45 67 8 9 0 12

21:

Read 20 items

> y

[1] 2 4 5 6 7 8 9 2 3 4 5 6 77 89 45 67 8 9 0 12

1. Generate the following sequence of numbers
2. 1,2,3,…,50.

> seq(1,50,1)

[1] 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34

[35] 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

1. 2,4,6,8,…,50

> seq(2,50,2)

[1] 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50

1. "A" "B" "C" "D" "E" "F" "G" "H"

> LETTERS[which(LETTERS>='A' & LETTERS<='H')]

[1] "A" "B" "C" "D" "E" "F" "G" "H"

1. e f g h i j k l

> noquote(letters[which(letters>='e' & letters<='l')])

[1] e f g h i j k l

1. Suppose we have the data below

2,5,7,8,9,3,5,8,67,45, 1,NA, 34,23,12,90

1. How many observations are there in the data set?

> y = c(2,5,7,8,9,3,5,8,67,45, 1,NA, 34,23,12,90)

> length(y)

[1] 16

1. Is there any missing value? Use R to check it out.

> any(is.na(y))

[1] TRUE

1. Identify the location of the missing value.

> which(is.na(y))

[1] 12

1. Identify the smallest and largest observation (both position and the value)

> max = max(na.omit(y))

> max

[1] 90

> max\_index = which(y==max)

> max\_index

[1] 16

> min = min(na.omit(y))

> min

[1] 1

> min\_index = which(y==min)

> min\_index

[1] 11