**Basic Operations in R Assignment**

**1.** Execute the following lines which create two vectors of random integers which are chosen with

replacement from the integers 0, 1, : : : , 999. Both vectors have length 250.

set.seed(100)

x <- sample (0:999, 250, replace=T)

y <- sample (0:999, 250, replace=T)

(a) Identify out the values in y which are > 500.

(b) Identify the index positions in y of the values which are > 700?

(c) What are the values in x which are in same index position to the values in y which are >

400?

(d) How many values in y are within 200 of the maximum value of the terms in y?

(e) How many numbers in x are divisible by 2?

(f) Sort the numbers in the vector x in the order of increasing values in y.

**2.** Use the function paste to create the following character vectors of length 30:

(a) ("Label 1", "Label 2", ....., "Label 30").

\*Note that there is a single space between label and the number following.

(b) ("FN1", "FN2", ..., "FN30").

\*\*In this case, there is no space between fn and the number following.

**3.** Compound interest can be computed using the formula

A = P × (1 + R/100)n, where P is the original money lent, A is what it amounts to in n years at R

percent per year interest.

Write R code to calculate the amount of money owed after n years, where n changes from 1 to 15 in yearly increments, if the money lent originally is 10000 Rupees and the interest rate remains constant throughout the period at 11.5%.

**4.** Generate the following matrices.

[,1] [,2] [,3] [,4]

[1,] 1 101 201 301

[2,] 2 102 202 302

[3,] 3 103 203 303

[4,] 4 104 204 304

[5,] 5 105 205 305

**5.** Create a 6 by 10 matrix of random integers chosen from 1 to 10 by executing the following two lines of code:

set.seed(100)

GMAT <- matrix( sample(10, size=60, replace=T), nr=6)

(a) Find the number of entries in each row which are greater than 4.

(b) Which rows contain exactly two occurrences of the number seven?

(c) Find those pairs of columns whose total (over both columns) is >= 50. The answer should be a matrix with two columns.