Class Assignment Set-1

1.Compute the following:

(a) 2*5*(6+9-3)

(b) 120-(8/5+(28*4))+(5+7)

(c) Area of a circle with radius 5 c.m.

(d) Let $x = 5.7$.

Find (i) $5x^2 + 2x + 3$

(ii)$\sqrt{x} + 3$

(iii) absolute value of $x^2 - 40$

2.(a)Suppose a variable x takes the values 5, 3, 7, 11, 4, 6, 10, 9, 8, 12. Obtain the values of the following variables

(i)$y_1 = 2x^2$–$11x + 25$

(ii)$y_2 = cos(x)$ (Change the values to radians)

(iii)$y_3 = ln(x) - 3$

(iv)$y_4 = log_{10}(x)$

(v)$y_5 = e^{x+5}$

(b) Create a vector named $fruit$ to enter the names of 5 types of fruits. Apple,mango,banana,orange and grape.

(c) Create a vector named *colour* putting TRUE if the fruit considered in (b) is Red and False otherwise.

3.Suppose a variable y takes the values 0.5, 2, 5, 9, 14, 19, 25, 32.

(i) obtain the value of $z = ln(y) - 1$

(ii) return a numeric vector z_1 containing the smallest integers not less than the corresponding elements of z.

(iii) return a numeric vector z_2 containing the largest integers not greater than the corresponding elements of z.

(iv) return a numeric vectorz_3 containing the integers formed by truncating the values in z toward 0.
(iv) return a numeric vector z_4 containing the observations formed by rounding off the values in z to two decimal places.
(v)return a numeric vector z_5 containing the observations formed by rounding off the values in z to two significant digits.

4.Enter the following sequences of numbers in R.
i) 1,2,3,4,5,. . . . . .,20
ii) 1,4,7,10,13,. 40
iii) 20,18,16,14,. 0
iv) 1,2,3,4,5,1,2,3,4,5,1,2,3,4,5,. . . . . (5 times)
v) 1,1,1,2,2,2,3,3,3,4,4,4,5,5,5
vi) 1,-1,1-1,1,-1,1,-1,. . . . . (20 times)
vii) 1,1,1,1,2,2,2,2,2,3,3,3,3,3,3.
viii) 1,1,2,2,2,2,2,3,3,4,5,5,5.
ix) 2,4,6,....,40 [using the sequence in (i)]

5.(a) Enter the following data on marks (out of 50) in a variable named x:
36, 5, 51, 52, 37, 35, 30, 35, 45, 21, 72, 62, 46, 88, 73, 9, 46, 36 ,90, 17, 56, 94, 53, 50, 63.
Work out the following
(i) Find the number of observations in x.
(ii) Print the first five and last four observations in x.
(iii) Print all observations apart from the 1st and 5th observation in x.
(iv) Print the observations which are greater than 45 and also their positions in x.
(v) How many times do the numbers 30, 35 and 37 occur?
(vi) Sort the observations in x in ascending order .
(vii) Rank the observations in x.
(viii) Find sum of the observations in x.

(ix) Find sum of those observations in x which are more than 40 and less than 80.

(x) Find the mean of x.

(xi) Find the mean of those observations in x which are less than 20 or more than 80. (xii) Find variance and standard deviation of x.

(xii) Find the three quartiles of x and the interquartile range.

(xiv) Find the minimum and maximum value of x.

(xv) Use the function "summary" and observe what information it gives.

(b) Consider an array storing the colour of hair of 15 persons as follows: Red Brown Red Black Red Black Black Black Brown Red Brown Black Red Brown Black.

Find the most fashionable hair colour among these 15 individuals.