**Q-1- Write Matlab program to define a matrix of 3 rows and 4 columns containing arbitrary numbers. The program should calculate the average of all elements of the matrix. Then, make the elements of the first row zeros and the elements of the last row ones. Print the two matrices and the average of the first matrix using the default printing.**

**clear , clc**

**x = [ 2 , 8 , 5 , 3 ; 4 , 7 , 12 , 6 ; 22 , 33 , 14 , 18 ] ;**

**A = mean ( x ( : ) ) ;**

**disp ( x )**

**disp ( A )**

**x1 = x ;**

**x1 ( 1 , : ) = 0 ;**

**x1 ( end , : ) = 1 ;**

**disp ( x1)**

**Q-2- Write Matlab code to enter 10 arbitrary angles in radians. Sort the angles in an ascending order then find the sine and cosine of the sorted angles. Calculate also the difference between the maximum and minimum values of the angles. Print your data in the form of table allowing two decimal digits for all numbers.**

**clear , clc**

**A = [ pi/3 , pi/4 , pi/6 , 2\*pi/3 , pi/7 , pi/8 , 3\*pi/4 , pi/5 , pi/10 , pi/12 ] ;**

**B = sort ( A ) ;**

**C = sin ( B ) ;**

**D = cos ( B ) ;**

**Difference = max ( A ) – min ( A ) ;**

**R = [ B ; C ; D ] ;**

**fprintf ( ' % 5.2f %5.2f %5.2f \ n ' , R)**

**fprintf ( ' \ n %5.2f \ n ' , Difference)**

**Q-3- Write Matlab program to print a table of four columns, where:-**

**The first column (x) includes arbitrary 8 numbers.**

**The second column (y) includes 8 arranged numbers between 0 and 20.**

**The third column (z) is given by:-** $z=\sqrt{x^{2}+y^{2}}$

**The fourth column is the average of x, y and z**

**Use the default printing command.**

**clear , clc**

**x = [ 8 , 4 , 3 , 7 , 9 , 6 , 1 , 2 ] ;**

**y = linspace ( 0 , 20 , 8 ) ;**

**z = sqrt ( x . ^ 2 + y . ^ 2 ) ;**

**w = ( x + y + z ) . / 3 ;**

**R = [ x ' , y ' , z ' , w ' ] ;**

**disp ( R )**

**Q-4- Write Matlab program to print a table of three columns and ten rows, where, the first and second columns contain arbitrary numbers. Sort the elements of the first column in an ascending order and those in the second column in a descending order. Then, generate the third column to be the average of the sorted two columns. Print the numbers in the first two columns with two decimal digits and those in the third column with three decimal digits.**

**clear , clc**

**x = [ 1 , 7 , 8 , 5 , 3 , 9 , 6 , 4 , 2 , 5 ] ;**

**y = [ 2.5 , 7.5 , 4.5 , 3.5 , 1.75 , 7.38 , 12 , 14 , 5.44 , 1.25 ] ;**

**x1 = sort ( x ) ;**

**y1 = sort ( y , ' descend ' ) ;**

**z = ( x1 + y1 ) . / 2 ;**

**R = [ x1 ; y1 ; z ] ;**

**fprintf ( ' %7.2f %7.2f %7.3f \n ' , R )**