Date: 3 Sept 2020

Assignment-3

Instructions:

1) **The programs should be in a single doc file and the script file program can be copy and paste in it followed by addition of the output window.**
2) **The submission deadline for this assignment is 09 September, 2020 and the evaluation will not done after the deadline**.

Q1) a) Is there a rot180 function? Is there a rot-90 function (to rotate clockwise)? Write command to rotate a matrix 180 degrees and to rotate it 90 degree clockwise.

b) Write a code that can be used for changing the dimensions of a matrix as follows?

Input matrix: 1 2 3 Output matrix: 1 4 2 5 3 6

4 5 6

c) Solve the given linear equations for v,w,x,y,z:

3v -3w +6x -2y+z = 14

3v -6w +x -y +z = 25

2v -4w +4x -4y+3z = 5

3v -6w +5x -y +2z = 30

2v -4w +9x +y +z = 30

d) Using the g and h given, try out the following.

g = [1 2 3 4; 5 6 7 8; 9 10 11 12]

h = [3 3 4 4; 5 5 6 6; 7 7 8 8]

i) h >= g

ii) g = = h

Q2) a) Write matlab commands for the following

• makes a n × n random matrix A normally distributed

• calculates its inverse B

• multiplies the two back together

• calculates the residual (i.e. difference between AB and identity matrix)

b) Create a row vector d with 5 linear spaced entries, say, containing the values of the diagonal entries (in order) then create a required diagonal matrix. Also add vector [2, -5,7] to 2nd upper off diagonal elements.

Q3) Let A = [1 7 3 5; 9 1 8 6; 2 0 3 0]. Explain the results and perform the following command:

i) compute the reciprocal of each element of A

ii) compute the square-root of each element of A

iii) swap the 2nd row and the last row

iv) obtain lower triangular elements of the matrix

v) [A A(end, :)]

vi) convert A into a 4-by-3 array

vii) add a row of all 1's at the beginning and at the end

ix) reshape A into 2 x 6 matrix

x) flip the matrix A along horizontal matrix