Benha University
Faculty of Engineering (Shoubra)
Electrical Engineering Department
1st year Electrical Power

Computer Programming (EC171)
Residuum 2nd Semester 2013/2014
Final Exam
Time: 3hr, No. of Pages: 2

Answer all the questions:

1. Write the output of the given MATLAB commands: **(10 Marks)**

   (a) B=(2:9); B(10:12)=[11 13 15],B(3:4:end), B(4)=7, B(5:7)=[7 6 5], B(14)=20, B([9 13])=[]

   (b) a=1:12; A=reshape(a,4,3), A(2,1:3)=[2 4 6], size(A), length(A), size([]), A(3,:)=[],
      A(1:3,1:2)=4, [i,j]=find(A>=9), A1(1:9)=A(:,:)

   (c) C=[1 2 3; 4 5 6; 7 8 9]; D=C(3:-1:1,:), E=[D(1:3,[1 3]) D], F=E(:,[1 2 4]), F', diag(D)

2. **(a)** What are the function of the following MATLAB commands: **(5 Marks)**

     (i) roots, poly **(ii)** area, conv **(iii)** repmat, rot90

     (iv) pwd, dir **(v)** fliplr, triu

   (b) Write a MATLAB Program to tabulate and plot the current, voltage and power to the **(7 Marks)**
     resistor R_L of the network of Fig.(1) for a range of values for R_L from 1Ω to 20Ω.
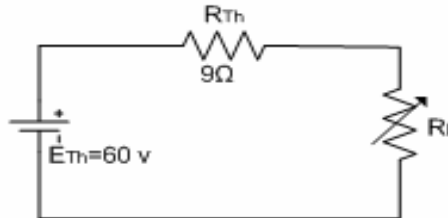   Print out the value of R_L that result in maximum power to R_L.

Fig.(1).

3. A sinusoidal supply voltage can be expressed by the equation $v=V_m \sin(\omega t)$. Write a **(8 Marks)**
MATLAB program that ask the user to enter the peak voltage and the supply frequency
then plot the instantaneous voltage for t starts from 0 to 60 ms with step 0.01 ms. Also
from the graphs calculate the average, RMS values of the supply voltage finally compare
the result with the values which can be determined from the predefined relations for the
average and RMS values.

               Good Luck
            Dr. Mohamed M. Fathy