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

Computer Programming
2nd Semester 2012/2013
Final Exam
Time: 3hr

Answer all the question:

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

(a) B=(0:8); B(10:12)=[11 10 9],B(2:3:end), B(7)=8, B(4:6)=[8 8 8], B(13)=9, B([10 11])=[]

(b) a=1:12; A=reshape(a,3,4), A(2,2:4)=[20 30 40], size(A), length(A), size([]), A(:,3)=[], A(1:3,1:2)=8,[i,j]=find(A>=25), A1(1:6)=A(:,2:3)

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

2. **(a)**What are the function of the following MATLAB commands: **(10 Marks)**

(i) randint, dbtype **(ii)** format long e, format short g, **(iii)** load, doc
(iv) flipud, tril **(v)** ishold, str2num

(b) Using the polynomials $A(x) = x^3 - 6x - 7$, $B(x) = x^2 - 2x - 6$. Write a MATLAB program to perform the following operations:

- $A(x) + B(x)$
- $A(x)\,B(x)$
- $\frac{A(x)}{B(x)}$
- $\frac{dA(x)}{dx}$
- $\frac{d[A(x)B(x)]}{dx}$
- $\frac{d[A(x)/B(x)]}{dx}$
- The roots of each polynomial

Finally draw these polynomials for x=1:10 with step 0.001 then find the area under each curve. **(10 Marks)**

3. A sinusoidal supply voltage of 100 v is applied on a parallel RLC circuit, Write a MATLAB Program ask the user to enter the values of the circuit parameters then sketch the current, voltages (v_c , v_L , v_R) and power (P_c , P_L , P_R) waveforms for t varies from 0 to 60 ms with step 0.01 ms. From the graphs determine the average and RMS values of the current also determine the average power dissipation across each element.

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