Electrical Engineering Department
University of Engineering & Technology
Peshawar, Mardan Campus

Basic Electrical Engineering

Assignment # 4(a)   **Due date: April 18**

Question 1: What is orthogonality and ortho-normality of two vectors. Explain it with reference to the angle between two vectors **2i + 2j –k** and **-2i -2j +k**

Question 2: Derive an equation for calculating net inductance of a circuit when;

a) "n" inductors are connecting in series
b) "n" inductors are connected in parallel

Question 3: Draw the impedance of a capacitor w.r.t frequency **"f"** when its capacitance is

(10+YourClassNumber+1)uF

and the circuit frequency rises from **100Hz** to **1000Hz** with a step size of **1Hz** using MATLAB.

(use http://octave-online.net/ for online MATLAB)

Hint:

(1) For creating a matrix k from 1 to 10 with a step size of 1, i.e., k = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10];
we write it in code as k=1:1:10;

(2) Xc=inv(2*pi*f*C)
(3) plot(x-axis quantity, y-axis quantity)

Note: Question 3 carries maximum marks and assignment won't be graded if someone fail to produce Question 3. All copied version plus the original will be graded as **-5** in sessional.