

**Department of Electrical and Computer Engineering
Concordia University**

**Software Testing and Validation
COEN 345**

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Closed book

Quiz #2/ 35%

Question #1 (6 points)

Define the following type of testing

- a) regression testing
 - b) performance testing
- ii) Why performance and load based testing are important for electronic commerce applications?

Question #2 (8 points)

```
read(x,y);  
if x <y then x:= x+y;  
if x is odd then x:= x*2;  
if x is even then x:=x+1;  
Print (x);
```

- a) Derive the control graph of the program
- b) Generate test data to satisfy the following criteria: all nodes, all edges, all independent paths.

Question #3 (7 points)

Mutation testing

```
Initial program  
i:=1;  
for j:=2 to 3 do  
If a[j]>a[i] then i:=j;  
Print (i);
```

Find mutants and a set of test data (if it exist) that will kill the mutants under the following assumption, 4 mutants only and one mutant by line of code.

Question #4 (6 points)

General question, What are the factors that influence the detection of faults in black box testing.