Maltepe University

SE342 Software Validation and Testing
2016-2017 Spring Midterm Questions

Name	:	Department	: . . . .
Student No	:	Date	: 26 April 2017, 09:30
		Grade	: . . . .

[4P] Q.1 What is *testing*? How testing can guarantee the absence of a bug?

[6P] Q.2 Explain when testing is done at least in two different Software Development Life Cycles? Which approach is better?

[6P] Q.3 Explain and compare *verification* and *validation.*

[4P] Q.4 Compare *testing* with *debugging.*

[10P] Q.5 What is *blackbox* testing and *whitebox* testing? Is there a third method for testing?

[10P] Q.6 Explain functional testing methods such as unit testing, integration testing and so on?

[10P] Q.7 Explain *error*, *fault* and *failure.*

[10P] Q.Bonus What are *git*, *github* and *gitlab*?

[10P] Q. 8 Draw the Control Flow graph of the following code.

```java
public class Occur {
   public static int occurrences(char[] v, char c) {
      if (v == null) {
         throw new NullPointerException();
      }
      int n = 0;
      for (int i = 0; i < v.length; i++) {
         if (v[i] == c) {
            n++;
         }
      }
      return 0;
   }
}
```

[15P] Q. 9 Fill the blanks to write 3 junits. What are these test cases? Line coverage? Node Coverage? Edge Coverage?

```java
import static org.junit.Assert.*;
import org.junit.Test;
public class TestOccur {
   @Test
   public void t1() {



   }
   @Test
   public void t2() {



   }
   @Test
   public void t3() {



   }
}
```

[10P] Q. 10 Draw the Control Flow graph of the following code.

```java
public class Conditionals {
   public int decision(int x, boolean a, boolean b) {
      if (a){
         if (b)
            x++;
      }
      else if (b)
         x--;
      return x;
   }
}
```

[15P] Q. 11 Fill the blanks to write 3 junits. What are these test cases? Line coverage? Node Coverage? Edge Coverage?

```java
import static org.junit.Assert.*;
import org.junit.Test;
public class TestDecision {
   @Test
   public void t1() {



   }
   @Test
   public void t2() {



   }
   @Test
   public void t3() {



   }
}
```