Quiz 2 Answer Sheet

Questions from versions A and B appear so the numbering and order of questions does not exactly match either version or the quiz.

1. In an Agile development environment, developers continue to write code while the testers run test suites. After defects are identified and fixes created, each fix should be applied to which version of the code so confirmation test can verify that the fix corrects the defect? (1) → **c**

    a. The latest version that the developers have.

    b. The version that makes up the start of the next increment or Sprint of development.

    c. The version on which the defect was reported.

    d. The same version used to regression test the whole set of defect fixes.

    e. The version being prepared for acceptance test to fix defects before potential users are exposed to them.

2. Which **two** of the following do most source code management (SCM) or version control systems do when a member of a development project uses the **check out** feature to get a file from the SCM? (1) → **b** and **d**
Hint: Select two

    a. The SCM deletes the file from the repository.

    b. The SCM sets the files status to checked out **and records who checked it out.**

    c. The SCM does not let anyone else access the file until it is checked back in.

    d. The SCM by default gives the user a copy of the latest version of the file.

    e. The SCM asks the user for a new version number.

3. Which **two** of the following do most source code management (SCM) or version control systems do when a member of a development project uses the **check in** feature to store a file in the SCM? (1) → **c** and **d**
4. **Hint:** Select two

    a. The SCM deletes the previous version of the file and replaces it with the new file.

    b. The SCM keeps the previous version and adds the entire new document in its repository.

    c. SCMs stores changes between the file being checked in and the previous version of that file.

    d. The SCM automatically assigns a version number, often incrementing by one

    e. The SCM asks the user for a new version number.

5. Which of the following is the most sensible reason for creating a **baseline** or **configuration** of files in the repository of a source code management (SCM) or version control system used by a software development project? (1) → **a**

    a. The current versions of files yields a fairly stable build to which developers may want to return later.

    b. An additional programmer joins the development team.

    c. Test reports a defect in the code.

    d. The project manager sends the requirements document out for review.

    e. A defect fix that is checked in passes confirmation test.

6. Which of the following is the most sensible reason for creating a new **branch** in the **repository** of a source code management (SCM) or version control system used by a software development project? (1) → **e**

    a. A tester reports a defect in the code under development.

    b. An additional programmer joins the development team.

    c. The developers add a component or feature to the application under development.

    d. A defect fix that is checked in passes confirmation test.

    e. **A baseline or configuration of files makes up the build that becomes a version of the product released to customers.**

7. You try to check a file out of a source code management (SCM) or version control system, but your request is denied with a message stating that the file is currently checked out by someone else. What does this message tell you about the SCM? (1) → **a**

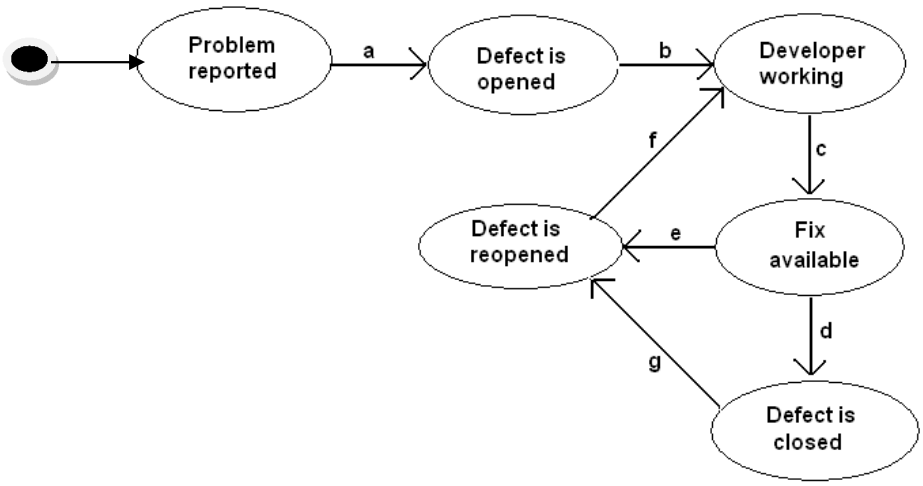
   a. **It uses pessimistic locking.**

   b. It uses optimistic locking.

   c. It has no locking mechanism so must ensure that only one person at a time accesses a file.

   d. The SCM administrator has failed to configure the repository for concurrent access.

8. Below is a state transition diagram of part of the life cycle of a defect. Answer the question below the diagram. (2)



   a. Passing the ___ **confirmation**_____ test is the most likely reason for transition **d**.

   b. Failing the _____ **regression** _____ test is the most likely reason for transition **g**

   Why does the diagram have a start/creation node before **problem reported**, but no stop/destruction node after **Defect is closed**?

   Records of defects are never deleted or removed from the SCM. At any time, the defect may reoccur or the fix may be found to fail some time or have unwanted side effects.

9. The primary goal in getting ISO 9001/90003 certification is to: (1) → **a**

   a. Gain customer confidence by informing them that that your company has implemented a quality management system.

   b. Acquire templates based on industry quality management standards for processes and documents so you can customize them for your company's software development projects

   c. Ensure software products that your company produces are of certified high quality as measured by industry-standard quality metrics.

   d. Establish benchmarks based on industry-standard tests that measure factors such as performance to assist customers in selecting competing products

   e. Assess the organization's software quality management system in terms of the CMMI levels.

10. What aspect of a company that produces software product does ISO 9001 certification relate to? (1) → **d**

   a. The CMMI level that the company has attained

   b. The sustainability of the company's activities: whether its processes are consistent with financial viability in the long term

   c. How thoroughly the company implements industry-standard quality control activities

   d. Whether the company's quality management system meets published guidelines

   e. How the company's products rate when measured by industry-standard benchmarks

11. What does CMMI stand for? (1) → **b**

   a. Carnegie-Mellon Maturity Indicator

   b. Capability Maturity Model Integration

   c. Computer Model Management Indicator

   d. Capability Model Measurement Initiative

   e. Carnegie-Mellon Management Initiative

12. Which of the following Capability Maturity Model Integration (CMMI) levels generally corresponds to a company starting to adopt QA at the corporate level? (1) → **c**

    a. Level 1: Initial

    b. Level 2: Repeatable

    c. Level 3: Defined

    d. Level 4: Quantitatively Managed

    e. Level 5: Optimizing

13. In the 5-stage test process, at which stage would you use a tool like **JUnit**? (1) → **c**

14.

    a. Planning and control

    b. Analysis and design

    c. Implementation and Execution

    d. Evaluation and reporting

    e. Test closure

15. The following class declaration runs **JUnit** tests. Which one of the statements below the listing is true? (1)
→ b

```
package credit.union.test;

import org.junit.runner.RunWith;
import org.junit.runners.Suite;
import org.junit.runners.Suite.SuiteClasses;

@RunWith(Suite.class)
@SuiteClasses( { SavingsActTest.class, ChequingActTest.class} )
public class ApplicationTest {
}
```

a. For each test case, class **TestBucket** should contain at least one method with the annotation **@Test**.

b. **The** TestBucket **class requires no code: it defines a suite of tests made up of test classes named in the** @SuiteClasses **annotation.**

c. The **TestBucket** class must contain a **main()** method to call the individual test methods and run them in the desired order.

d. The **TestBucket** class must contain a **main()** method output the test results.

e. The **TestBucket** class should have at least one method annotated **@Before** to set up preconditions for the individual tests and a method annotated **@After** to perform clean up after the tests run.

16. In a **JUnit** test class, test method **withdrawTest()** tries to withdraw an amount that is larger than the balance in a bank account. Therefore, correct behavior is for the code under test to throw an **InsufficientFundsException**. How should you write this method? (1) **→c**

a.
```
@Test
public void withdrawTest() {
  try {
      //
      // code to call withdraw() method on bank account object
      //
  } catch (Exception e) {
      Assert.assertTrue( e instanceof InsufficientFundsException );
  }
}
```

b.
```
@Fail(expected=exception)
public void withdrawTest() {
    //
    // code to call withdraw() method on bank account object
    //
    Assert.assertThrown(java.sqlException);
}
```

c.
```
@Test(expected = InsufficientFundsException.class)
public void withdrawTest() {
    //
    // code to call withdraw() method on bank account object
    // no assertion or exception handing required in method
    //
}
```

d.
```
@Test
public void void withdrawTest() {
    //
    // code to call withdraw() method on bank account object
    //
    fail( InsufficientFundsException.class );
}
```

17. In a **JUnit** test class, test method **insertTest()** tries to insert a new row into a database table using a primary key that is already in the table. Therefore, correct behavior is for the code under test to throw a **java.sql.SQLException**. How should you write this method? (1) **→b**

a.
```
@Fail(expected=exception)
public void insertTest() {
    //
    // code to insert record in database
    //
    Assert.assertThrown(java.sqlException);
}
```

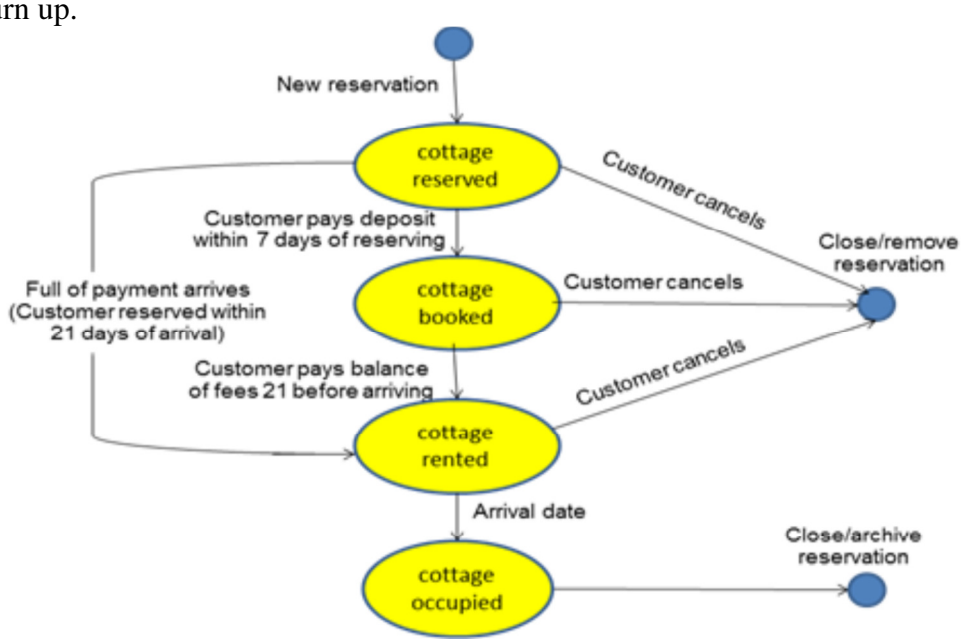
b.
```
@Test(expected = java.sql.SQLException.class)
public void insertTest() {
    //
    // code to insert record in database
    // no assertion or exception handing required in method
    //
}
```

c.
```
@Test
public void insertTest() {
     try {
         //
         // code to insert record in database
         //
     } catch (Exception e) {
        Assert.assertTrue( e instanceof java.sql.SQLException );
     }
}
```

d.
```
@Test
public void insertTest() {
    //
    // code to insert record in databse
    //
    fail( java.sql.SQLException.class );
}
```

18. Your team is developing a reservation management system for a small resort that rents lakeside cottages during the summer. The rent for one cottage is $1,000 a week. You can assume that all reservations are for one cottage for one week. Read the additional business rules and a state diagram below. On the next page, give specifications for two test cases each of which verifies that the software correctly handles step in the cottage reservation process. (6)

- A customer asks to reserve one of the cottages for a week. If a cottage is available, the system reserves it for the customer.
- Upon making a reservation for an arrival date more than three weeks in the future, the customer must submit a deposit of $250 within seven days.
  - If the deposit arrives on time, the system books the cottage for the customer.
  - Otherwise, the system cancels the reservation.
- The balance of $750 is due 21 days before the arrival date or 7 days after making the reservation, whichever comes first.
  - If the balance arrives on time, the system considers the cottage rented.
  - Otherwise, the system cancels the booking/reservation and keeps the deposit.
- A customer can rent in one step by the full $1,000. This is the only option for renting within 21 days of the arrival date.
- A customer may cancel at any time before the arrival date.
  - If the customer cancels more than 21 before the arrival date, the system refunds all money paid including the deposit.
  - If the customer cancels between 21 and 7 days before the arrival date, the system keeps the deposit but refunds the balance of the rental fee.
  - If the customer cancels within 7 days of the arrival date, no refunds are given.
- If the cottage is booked on the arrival date, cottage is marked occupied, even if the customer does not turn up.



Hint: Carefully read the provided title because it identifies which transition to test.

Title: A customer's deposit arrives within 7 days of making a reservation and more than 21 days before the arrival date.	**Title:** A customer who has paid in full cancels a reservation more than 21 days before the arrival date.
Condition for success **Upon making a reservation for an arrival date more than three weeks in the future, the customer must submit a deposit of $250 within seven days.** *Quote full business rule*	**Condition for success** **If the customer cancels more than 21 before the arrival date, the system refunds all money paid including the deposit.** *Quote full business rule*
Precondition test data **On March 15, the Smith Family reserved cottage 5 for the week of July 10.** *Give test data: names, dates, cottage number*	**Precondition test data** **Cottage 5 has been rented to the Smith family for the week of July 10.** **The Smith family reserved on March 15, paid the deposit on March 20 and paid the balance on April 20.** *Give test data: names, dates, cottage number*
Action or input **The deposit of $250 arrives from the Smith Family on March 20.** *Name the event that caused this state transition*	**Action or input** **The Smith Family cancels their reservation on May 25.** *Name the event that caused this state transition*
Postcondition or expected result **Cottage 5 is booked by the Smith Family for the week of July 10.** **Balance of $750 is due by June 19.** *Give the resulting state of the cottage and what money is outstanding or refunded.*	**Postcondition or expected result** **Cottage 5 is available for the week of July 10 and the reservation is cancelled.** **The Smith family are sent the full $1,000 refund.** *Give the resulting state of the cottage and what money is outstanding or refunded.*

Hint: Carefully read the provided title because it identifies which transition to test.

Title: A customer reserves a cottage and makes the reservation less than 21 days before the arrival date.	**Title:** A customer cancels a reservation after paying the $250 deposit but before the balance of $750 is due.
Condition for success **A customer can rent in one step by the full $1,000. This is the only option for renting within 21 days of the arrival date.** *Quote full business rule*	**Condition for success** **If the customer cancels more than 21 before the arrival date, the system refunds all money paid including the deposit.** *Quote full business rule*
Precondition test data **Cottage 8 is available for the week of July 10.** *Give test data: names, dates, cottage number*	**Precondition test data** **Cottage 6 has been booked by the Aziz family for the week of August 3.** **The Aziz family reserved on Feb 20, paid the deposit of $250 on March 28 and have not yet paid the balance of $750.** *Give test data: names, dates, cottage number*
Action or input **On June 30, the Jones Family reserved cottage 8 for the week of July 10.** ----------or---------- **On June 30, the Jones Family reserves cottage 8 for the week of July 10 and pays the full $1,000.** *Name the event that caused this state transition*	**Action or input** **On May 10, the Aziz family cancels their reservation.** *Name the event that caused this state transition*
Postcondition or expected result **Cottage 8 is reserved for the Jones family for the week of July 10 and the full payment is due immediately.** ----------or---------- **Cottage 8 is rented to the Jones family for the week of July 10.** *Give the resulting state of the cottage and what money is outstanding or refunded.*	**Postcondition or expected result** **Cottage 6 is available for the week of August 3 and the reservation is cancelled.** **The deposit of $250 is returned to the Aziz family.** *Give the resulting state of the cottage and what money is outstanding or refunded.*

End of Quiz