

**The Open University of Sri Lanka**  
**Faculty of Natural Sciences**  
**B.Sc/ B. Ed Degree Programme**



072

<b>Department</b>	<b>: Computer Science</b>
<b>Level</b>	<b>: 05</b>
<b>Name of the Examination</b>	<b>: Final Examination (2<sup>nd</sup> Semester)</b>
<b>Course Title and - Code</b>	<b>: CSU5301 Software Quality Assurance</b>
<b>Academic Year</b>	<b>: 2020/2021</b>
<b>Date</b>	<b>: 31.03.2022</b>
<b>Time</b>	<b>: 9.30 am – 11.30 am</b>
<b>Duration</b>	<b>: Two hours only</b>

**General Instructions**

1. Read all instructions carefully before answering the questions.
  2. This question paper consists of **(06)** questions in **(04)** pages.
  3. Answer any **(04)** questions only. All questions carry equal marks.
  4. Answer for each question should commence from a new page.
  5. Draw fully labeled diagrams where necessary
  6. Involvement in any activity that is considered as an exam offense will lead to punishment
  7. Use blue or black ink to answer the questions.
  8. Clearly state your index number in your answer script
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Q1).

I.

- Explain the advantages of early test case design.
- Describe the terms "entry criteria" and "exit criteria" in the test case design process.

II. Please find the decision table below for an ATM machine.

Consider the following decision table describing the same ATM.						
Condition	1	2	3	4	5	6
Valid Card	N	Y	Y	Y	Y	Y
Cancel	-	Y	N	N	N	N
Valid PIN	-	-	N	N	Y	Y
Invalid PIN=3	-	-	N	Y	N	N
Balance Ok	-	-	-	-	N	Y
Action						
Return Card	Y	Y	N	Y	N	Y
Reenter PIN	N	N	Y	N	N	N
Reenter Request	N	N	N	N	Y	N
Dispense Cash	N	N	N	N	N	Y

By analyzing the above decision table, lists the actions to be performed for the following condition combinations.

- When a user inserts an invalid card.
- When a user enters an invalid pin for three times.
- User clicks on the cancel button once entered a valid card.
- The user inserts a valid card and gives the correct PIN and there is enough money left.
- When a user clicks the cancel button when inserting a valid card.

Q2).

I

- Describe the importance of having a test plan for the software quality assurance process.
- Explain the following key elements of a test case,
  - Test case description
  - Expected results
  - Test steps
  - Actual result
  - Test Status
- Discuss the advantages of maintaining test case documents in the software quality assurance process.

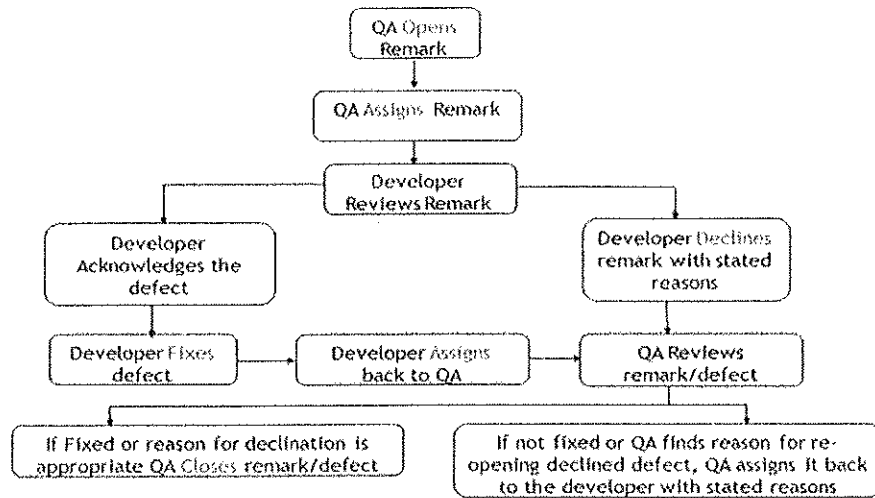
II A tester wrote test cases for Product A and he raised defects for failed test cases. But the developer has rejected many defects with the reason 'Work as designed' after a defect triage.

- Explain the root cause for example above.
- Describe the process that the tester can follow to avoid the example given above.

Q3).

I.

- a. Describe the following defect management life cycle.



- b. Explain the following defect statuses that can be used to decline a defect:

- Duplicate
- Deferred
- Not reproducible

II.

A tester noticed that the 'Product A' logo was trimmed in the upper left corner of the webpage when executing the UI test cases.

- a. What is the priority of the above defect?
- b. What is the severity of the above defect?
- c. Developer has fixed the defect and when the tester retests the defect again it is not fixed according to the requirement he observed. What is the defect status that the tester can change now?

Q4).

I.

- a. Why is software quality assurance required throughout the software development life cycle?
- b. Describe the involvement of 'static testing' and 'dynamic testing' in the software development life cycle.
- c. Explain the difference between a walkthrough and an inspection.
- d. Describe the importance of the code review in the defect prevention process.

- II. A software company is developing an online purchasing system for a local client. The following are the key problems identified in their current software development process. Explain the solutions for each problem:

- a. Poor requirements
- b. Unrealistic schedule
- c. Inadequate testing
- d. Changes to the requirement
- e. Miscommunication

Q5).

I.

- a. Explain the advantages of independent testing.
- b. Describe the importance of:
  - Product metrics
  - Process metrics
  - Project metrics

II.

- a. Discuss the quality gap in the software quality assurance process.
- b. List the costs of quality? Briefly explain each.

II. Janaka is a QA lead of a product in healthcare domain and his team consists of 5 testers. In the middle of a cycle of test execution, a member of his team suddenly fell ill and did not report to the work for two weeks. In this case, Janaka and the rest of the team have to work long hours to meet the deadline of the execution cycle.

- a. What are the project and product risk in the example above?
- b. Briefly explain following risks involved in the software quality assurance process.
  - Not enough training/Lack of test competency
  - Lack of test tools
  - Lack of management understanding and support of testing
  - Lack of customer and user involvement

Q6).

I

- a. Discuss the importance of configuration management in the software development process.
- b. Describe the key areas of configuration management.

II

- a. Explain the benefits of automation testing.
- b. What kind of test cases cannot be automated? Explain your answer.

III

- a. Describe why performance testing is important for a web application.
- b. Briefly describe the following types of performance tests:
  - Load test
  - Stress test
  - Scalability test

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