

THE OPEN UNIVERSITY OF SRI LANKA  
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE  
B.Sc. DEGREE PROGRAMME 2012/2013  
**FINAL EXAMINATION**  
**CPU3147: SOFTWARE QUALITY ASSURANCE**  
**DURATION: TWO HOURS ONLY (2 HOURS)**



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**08<sup>th</sup> June, 2013**

**Time: 9.30 a.m. to 11.30a.m.**

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Answer **FOUR** Questions **ONLY**.

**Q1).**

I.

- a. Why is software quality assurance necessary throughout the software development life cycle?
- b. Explain the difference between '*Software Quality Assurance*' and '*Software Quality Control*'.
- c. Describe the involvement of '*static testing*' and '*dynamic testing*' in the software development life cycle.
- d. Discuss the objectives of *inspections*.

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

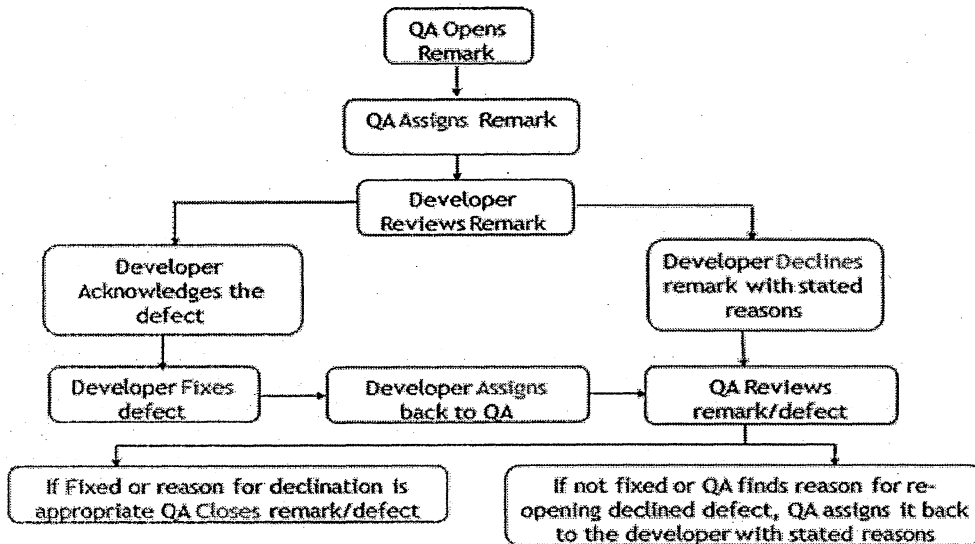
Identified problems;

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

Q2).

I.

a. Describe the defect management life cycle shown below.



b. Explain the following defect statuses used to decline a defect:

- Duplicate
- As designed
- Not reproducible

II.

- a. Explain the importance of defect prevention in the software development process.
- b. A test manager realized that the test cases were not effective and that therefore most of the submitted defects became invalid. Explain the process that is needed to avoid this type of situations in the early stages of software development life cycle.

Q3).

I.

- a. Describe the importance of having a test plan for the software quality assurance process.
- b. Explain the following key elements of a test case,
- Test case description
  - Test steps
  - Input data
  - Expected results
  - Actual result

c. Discuss the advantages of maintaining test case documents in the software quality assurance process.

II. Explain the following attributes of a good test case,

- Effective
- Exemplary
- Evolvable
- Economical

Q4).

I.

a. Explain the factors that need to be considered when selecting a test case design technique.

b. Describe the terms “entry criteria” and the “exit criteria” in test case design process.

c. Explain the advantages of early test case design.

II. A technical support company prepared a decision table to diagnose printer problems based upon symptoms described to them over the telephone by their clients.

Printer troubleshooter									
Conditions	Rules								
	Printer does not print	Y	Y	Y	Y	N	N	N	N
	A red light is flashing	Y	Y	N	N	Y	Y	N	N
	Printer is unrecognised	Y	N	Y	N	Y	N	Y	N
Actions	Check the power cable			X					
	Check the printer-computer cable	X		X					
	Ensure printer software is installed	X		X		X		X	
	Check/replace ink	X	X			X	X		
	Check for paper jam		X		X				

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

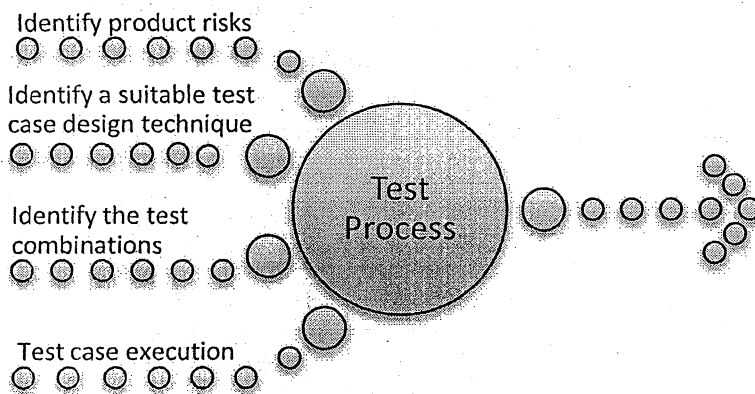
- a. When the printer is not printing, the red light is flashing and the printer is recognized.
- b. When the printer is printing, the red light is not flashing and the printer is recognized.
- c. When the printer is printing, the red light is flashing and the printer is unrecognised.
- d. When the printer is not printing, the red light is flashing and the printer is unrecognised.

Q5).

I.

- a. Discuss the following factors which affect to the software testing.
  - People relationships
  - Scope of testing
  - Misunderstanding life cycle testing
- b. Explain the advantages of independent testing.
- c. Describe the importance of:
  - Product metrics
  - Process metrics
  - Project metrics

II. Given below is the test approach followed by a software company to test a web application. Explain the risk based testing practiced by aligning with the given activities.



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 performance test types:
  - Load test
  - Stress test
  - Scalability test

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