

THE OPEN UNIVERSITY OF SRI LANKA
 DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
 B.Sc. DEGREE PROGRAMME 2014/2015
 FINAL EXAMINATION
 CPU3147: SOFTWARE QUALITY ASSURANCE
 DURATION: TWO HOURS ONLY (2 HOURS)



10th May, 2015

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

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

Q1).

I.

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

- II. Consider the following decision table prepared by a technical support company to diagnose printer problems based upon symptoms reported by their clients.

Printer troubleshooter										
Conditions	Rules									
	Printer does not print	Y	Y	Y	Y	N	N	N	N	N
	A red light is flashing	Y	Y	N	N	Y	Y	N	N	N
	Printer is unrecognised	Y	N	Y	N	Y	N	Y	N	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, list down the actions recommended to be performed when the following combinations of symptoms are reported.

- When the printer is not printing, the red light is flashing and the printer is recognized.
- When the printer is printing, the red light is flashing and the printer is not recognized.
- When the printer is not printing, the red light is flashing and the printer is not recognized.
- When the printer is printing, the red light is not flashing and the printer is recognized.

Q2).

I.

- Consider the following statement on software testing.

“Even though testing was done thoroughly for software, there can be bugs in the products delivered”

Do you agree with the above statement? Give reasons.

- b. List down four (04) common problems that encounter in the software development process from the quality assurance perspective.

II.

- a. Consider the following statement on static testing.

“Static testing: No code execution”.

Is this a true statement?

- b. What are the people-based static testing techniques? Briefly explain each technique.
- c. You have been asked to prepare a presentation on the benefits of having static testing for a software project. State the main points that you will include in this presentation.

III. What is the difference between *functional* and *non-functional testing*?

Q3).

I.

- a. Explain the importance of having a test plan for the software quality assurance process.
- b. Describe briefly the following elements of a test case,
 - Test case description
 - Test steps
 - Input data
 - Expected results
 - Actual results
- 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. The producer of a product views the quality of the product in a different angle from the customer who uses that product.
 - a. Define the *producer's* view of quality, and the *customer's* view of quality.

- b. List down three (03) characteristics of a product produced from both the producer's view and customer's view.

II.

- a. List down the *costs of quality*? Briefly explain each.
 b. Consider the following statement on external failures.

'External failure costs can be more devastating...'

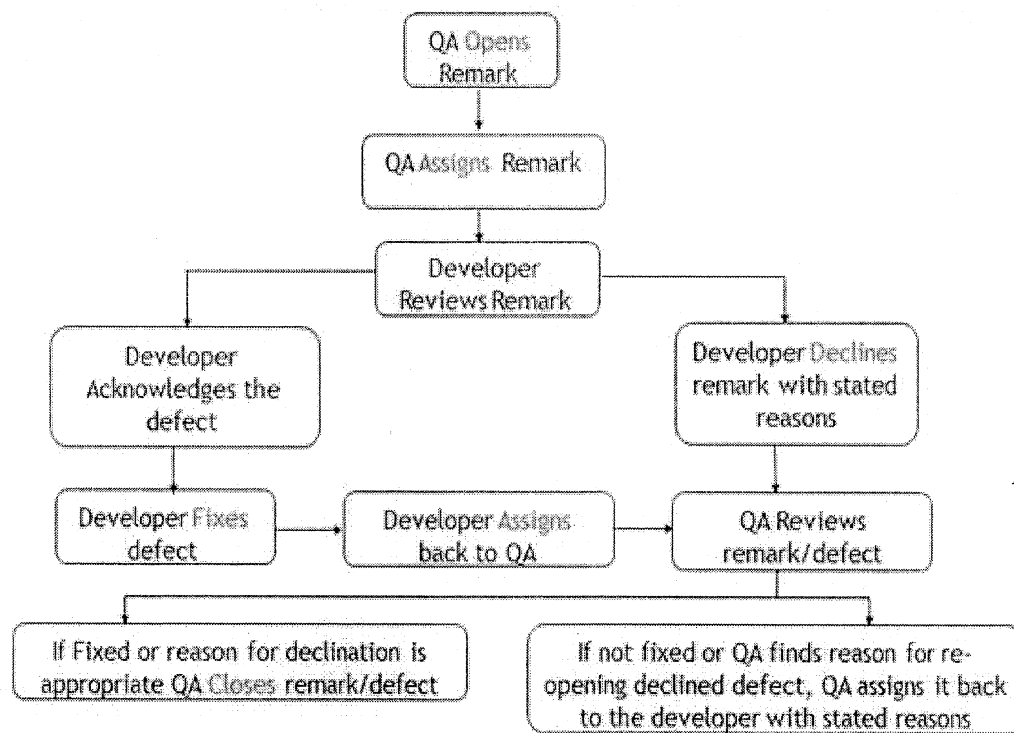
Do you agree with this statement? Justify your answer.

III.

- a. The effectiveness of finding defects by reviewing and testing can be improved by using independent testers. List down four (04) advantages of independent testing.
 b. The test competency is based on two (02) criteria. Briefly explain them.

Q5).

- I. Describe the defect management life cycle shown below.



- a. 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 consequently, a majority of the submitted defects became invalid. Explain the process that is needed to avoid this type of situations in the early stages of the software development life cycle.

Q6).

I.

Ajith is the Quality Assurance Lead of a project and has identified a list of risks in his project. The risks are generally classified into two types. Categorize the following risks based on these two types.

- a. The system is to be integrated with a separate system which calculates tax and handles a payment gateway
- b. An open source software which has not been used previously will be used after customizing according to the client's needs
- c. Senior Test Engineer of the project will be on leave for 2 weeks during the test execution
- d. Software will be built using new technologies
- e. Customer deadline is fixed and development team is delaying the "build" for testing due to some delays in the development

II.

- a. What are the four (04) stages involved in risk management? Briefly explain them.
- b. List down four (04) risks associate with software testing.

III. What are the key areas that include in Configuration Management procedure?

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