



THE OPEN UNIVERSITY OF SRI LANKA
 DEPARTMENT OF COMPUTER SCIENCE
 B.Sc. DEGREE PROGRAMME 2017/2018
 FINAL EXAMINATION
 CPU3147/CSU5301: SOFTWARE QUALITY ASSURANCE
 DURATION: TWO HOURS ONLY (2-HOURS)

26th September, 2018

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

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

Use the following scenario to answer the questions.

TelGlobe is a large telecommunication service provider established in the Middle East and carrying out their operations across the world. They want to replace their legacy system with a new enhanced web portal and Mobile Application. Following are the Key business functionalities that they require in the new system.

- The Portal should be able to access from anywhere in the world.
- **TelGlobe** has two customer types such as Personal and Cooperate.
- The company needs their customers to be able to get registered within the portal.
- The Customer should direct to the registration page upon clicking the “**Register**” link in the **TelGlobe** portal Home page.
- The registration process will be based on the customer type (**Personal** or **Cooperate**)
- Once successfully registered with the system the system should generate a Password for the user and send it to the email address provided by the user.
- The Customer should be able to login to the Portal with the **Desired Name** or **Company Name** as the username (Based on the user type) and the Password.
- The Customer is asked to change the password on the first login and a confirmation of a password change notification should be sent to the registered mail address.
- The Customer should be directed to the **Home** (Profile) page after a successful login.
- The Profile page is based on the Customer Type. i.e. If it is a Personal customer the Home page should be greeted with the Customer’s Desired Name. If it’s Cooperate customer the company logo and the name should be displayed in the Home page.
- **TelGlobe** offers ten default applications for their customers on the registration regardless of the customer type. The “**Application**” link in the Profile page will take the customer to the **TelGlobe**’s applications home page which will list there hundred and fifty applications. Each application will have a postfix of either “**Access**” or “**Get Access**” based on the granted access for a customer. By default, all the registered users will get the Postfix of “**Access**” for the default applications. If Customers need any other applications which are to be chosen out of hundred and fifty, they need to click on the “**Get Access**” link and that should direct the customer to the “**Request Access**” Form.
- The Customer needs to fill the required information on the form and upon clicking the “**Submit**” the request will be sent to the **TelGlobe** Application management group.
- The process of reviewing the request and approving is outside of the scope of the **TelGlobe** project.
- The customer is notified with the status (Approved/Rejected with the reasons) and should be able to access the relevant application for the approved ones.
- Mobile application should support Android, Apple and Windows platforms (Latest).
- Mobile application shall provide the same functionalities as Web application.

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Assume you have been assigned as a Software Quality Assurance Engineer for the project.

Question 1

- a) Elaborate the main test design techniques and what is your selection to design your test cases for the above scenario?
- b) Briefly explain *Equivalence partitioning* and *Boundary Value Analysis*.
- c) The Password field accepts 6 to 15 characters, but nothing less or above. Using Equivalence Partitioning or Boundary Value Analysis, derive two (02) test cases to test the field validation.
- d) Derive six (06) test cases to cover the most critical functionality of the TelGlobe Portal.

Question 2

- a) Define the quality in view of producer and user. (Define how producers view quality and how users view quality). Discuss the differences between the two views.
- b) Describe the difference between Software Development Life Cycle-(SDLC) and V-Model.
- c) What are the main software quality factors? (give a brief introduction for each)
- d) Which model would you follow in TelGlobe project? (you must elaborate including Pros and Cons)

Question 3

- a) Identify three (03) Product Risks and three (03) Project Risks that you would expect in TelGlobe Project.
- b) Give mitigation and contingency plans for two (02) Projects and two(02) Product risks you have identified in Question 3) a).
- c) Elaborate on the defects life cycle.

Question 4

- a) Briefly describe what the statistic testing is, and list down the activities of three (03) static testing.
- b) How static testing will help to deliver a quality product by identifying three (03) reasons.
- c) Explain the terms: *Smoke Testing*, *Regression Testing*, *Functional Testing*, *Integration Testing*, *System/UAT Testing* and *Re-Testing*.
- d) Explain the testing type that you are going to use with TelGlobe System.

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Question 5

The following summary is obtained once you have completed testing of the TelGlobe project for a given relies.

- # Critical Defects - 0, # High Defects – 3, # Medium Defects – 10, # Low Defects 20
 - QA Team has entered 50 Remarks and only 33 got accepted as Defects
 - There were 380 Test cases executed out of 500 Test cases.
- a) What is a *Test Matrix* and give three (03) examples.
 - b) Find the DSI, DD and DRR for the above execution summary.
 - c) Explain the Release status using all the metrics while considering the Pass rate and the Test coverage.

Question 6

- a) What is a QA Test Plan (QATP) and discuss the importancy of it?
- b) List down the mandatory components of a test plan.
- c) Write down the QATP for the TelGlobe Project.

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