

University of Ruhuna- Faculty of Technology
Bachelor of Information and Communication Technology Degree
Level 3 (Semester 1) Examination, January 2021

Course Unit: ICT3132- Software Testing Methods and Tools **Time Allowed: 2 hours**

Answer **all** four (04) questions

This question paper contains 04 pages.

1.
 - a.
 - I. Along with an example explain why software testing is important.
 - II. List three (03) differences between testing and debugging.
 - III. Briefly analyse the role of software testing in different stages of the Software Development Life Cycle.
 - b.
 - I. Write down the main group of test activities and tasks involved in the test process.
 - II. With help of an example state what is meant by Psychology of Testing is.
 - III. Analyse the differences between a Defect, a Failure, and an Error.
 - c. Briefly explain the stages a defect passes through in a software development process
2.
 - a.
 - I. Test cases are of two types: positive test cases and negative test cases. Using an example, discuss the differences between these two types.
 - II. Copy the below given table to your answer sheet and fill the below given chart with proper explanations for each item.

Item	Description
Test case description	
Prerequisites	
Test data	
Expected result	
Actual result	
Status	

III. Create a positive test case for the below given interface.

Number Addition

First Number:

Second Number:

Result:

- b.
- I. List **four (04)** scenarios where you can apply regression testing.
 - II. State **five (05)** functional and **five (05)** non-functional requirements needs to be tested for an online shopping web application.
 - III. Write short notes to explain the below test levels.
 - i. System Testing
 - ii. Beta Testing
 - iii. Alpha Testing

3.

- a.
- I. When designing test cases for a system is it important to use test design techniques. Do you agree on the given statement? Justify your answer
 - II. A theme park charges an entry fee based on age group. For children below 3 it charges nothing, for 3-10 it charges LKR. 500/-, for 10-18 it charges LKR. 800/-, then for 18-60 it charges LKR. 1000/- and above 60 it charges LKR. 500/- again. Using Boundary Value Analysis, what will be the values to test if a person pays LKR. 500/- entry fee?
 - III. Draw a decision table for the below given scenario. Apply the redundancy rule if applicable.

A shop owner allows credit facility to his customers if they satisfy any one of the following conditions:

- 1. Holding the present job for more than 3 years and residing in the same place for more than 5 years.
- 2. Monthly Salary exceeds LKR15,000 and holding the present job for more than 3 years.
- 3. Residing in the same place for more than 5 years and monthly salary exceeds LKR15,000.

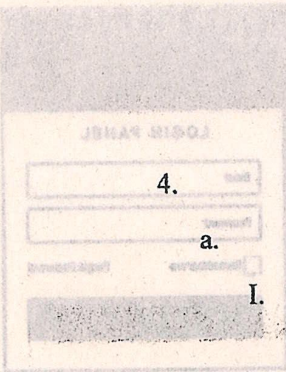
The facility is rejected for all other customers.

III. Examine the user interface (Figure 1) and the code segment given below (Figure 2). Complete the below code to perform login action using Chrome browser with Selenium WebDriver.

b.

- I. Briefly explain the importance of conducting structural testing.
- II. Using a proper example clearly elaborate the differences between Dynamic testing and Static testing.
- III. Consider the below pseudo-code.
Represent the above logic in a flow chart and identify how many test cases are required to cover 100% of branch coverage and clearly mention the paths covered by each test case you suggest.

```
    If (Walking && Midnight)
    If (Raining)
        Take Umbrella and searchlight
    Else
        Take searchlight
    End IF
Else if (Running && Sunshine)
    IF (Raining)
        Take umbrella
    Else IF
    Else keep doing what you are doing
End IF
```



- I. Mention **three (03)** opportunities and **three (03)** drawbacks you may face when adopting test automation to your projects.
- II. Write down **five (05)** categories of test tools.
- III. When selecting a proper tool for your organizations, denote **five (05)** main principles you have to consider.

b.

- I. Briefly analyse what you can do and cannot do with Selenium. Use **three (03)** points for each.
- II. Write the Selenium commands to perform the below actions
 - i. Clear the user inputs
 - ii. Refresh/Reload the webpage
 - iii. Close the browser and all other windows associated with the driver
 - iv. Move between the frames

- III. Examine the user interface (Figure 1) and the code segment given below (Figure 2). Complete the below code to perform login action using Chrome browser with Selenium WebDriver.

URL: <https://phptravels.com/demo/>

```
package com.ruh.browsers;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
public class UserLogin{
    public static void main (String[] args){
        System.setProperty("_____", "path_of_the_file\____");
        WebDriver _____ = _____;
        driver._____.to(_____);
        driver._____ (By.name ("_____")) ._____ ("_____");
        driver._____ (By.name ("_____")) ._____ ("_____");
        driver._____ (By.name ("_____")) ._____ ();
    }
}
```

The screenshot shows a 'LOGIN PANEL' with the following elements:

- An 'Email' text input field.
- A 'Password' password input field.
- A checkbox labeled 'Remember me'.
- A link labeled 'Forgot Password'.
- A large black button at the bottom.

Figure 1

```
<label class=
  <input type="text" name="email" placeholder="Email" required autofocus class=
</label>
<label class=
  <input type="password" name="password" placeholder="Password" required autofocus class=
</label>
<div class="row form-group">_</div>
</div>
<button data-wow-duration="2s" data-wow-delay="s" type="submit" class="btn btn-primary btn-block
btn-lg" data-style="zoom-in" name="button">
  <span class="ladda-label">Login</span>
  <span class="ladda-spinner"></span>
</button>
<div style="margin-top:10px" class="resultlogin"></div>
</form>
```

Figure 2