

**Uva Wellassa University of Sri Lanka**  
**Faculty of Science and Technology**  
**Department of Computer Science and Technology**  
**200 level 2<sup>nd</sup> Semester Examination – Dec.-2017/Jan.-2018**  
**CST243-3 Rapid Application Development**



**Instructions to candidates**

This paper consists of three (03) parts; Part A (MCQ), Part B (Essay) and Part C (Practical)

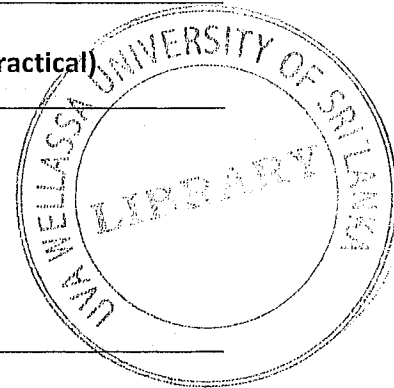
**Part B**

**Duration:** One (01) hour

**Number of questions:** Two (02)

**Answer all the questions**

**Mark allocation:** 30



- 1.
- a. Rapid Application Development (RAD) is a software development methodology that uses minimal planning in favour of rapid prototyping.
- i. What is prototyping? (1 mark)
  - ii. Name four (04) core elements available in the RAD process. (2 mark)
  - iii. List two (02) advantages and two (02) disadvantages of the RAD process. (2 mark)
- b. "Software internationalization and software localization are two interrelated processes". Explain this statement. (2 mark)
- c. The following Java code is vulnerable to a 'SQL Injection' attack.
- ```
Statement stmt = con.createStatement();
String query = "SELECT * FROM login WHERE username='" + username + "'
AND password='" + password + "'";
ResultSet rs = stmt.executeQuery(query);
```
- i. Briefly explain the vulnerability of this code using an example attack. (3 mark)
  - ii. Rewrite the code using appropriate Java classes to prevent the above attack. (5 mark)
- 2.
- a. ASCII, Extended-ASCII and UNICODE are the major transition stages in character encoding in computer systems.
- i. What is the main issue addressed by the Extended-ASCII? (1 mark)

- ii. Suppose that a document contains English and Sinhala characters. By using UNICODE encoding schemes, what is your recommended strategy to reduce the size of the file? Briefly explain your answer. (3 mark)
- b. Java Server Pages (JSPs) eventually are compiled into Java Servlets. Explain how it happens using JSPs execution process. (3 mark)
- c. Testing is a way to increase your confidence that your program meets its requirements.
- i. Briefly explain 3A's used in unit testing. (3 mark)
- ii. Following is a Java class used in a banking system to carry out cash withdrawal function. Write a unit test script to test the successful withdrawal case of the CashWithdrawal method.

```
public class Withdrawal {
    double currentBalance;
    public void CashWithdrawal(double requestedAmount) {
        if (requestedAmount <= currentBalance) {
            currentBalance = currentBalance - requestedAmount;
        } else {
            System.out.println("Insufficient Balance");
        }
    }
}
```

(5 mark)

