Uva Wellassa University, Sri Lanka
End Semester Examination – June 2010
CST 204-2 Software Engineering & Quality Assurance
PART B

Time: One (01) hour and Fifteen (15) minutes

Total 04 questions in PART B
Answer **two (02)** questions
Question Number 3 (Q3) is compulsory

Q1. Suppose you are working on a project which develops a system to handle the payroll system of ABC Company (Pvt) Ltd. This is scheduled for a 6 month time period and security and reliability was emphasized at the first meeting with the end users. The technical leader of the team proposed to come up with a prototype before starting development. You were asked to work as the requirements engineer of the project.

a.) What are the steps you have to follow at this phase? [04 marks]

b.) What are the methods you use to gather requirements? [03 marks]

c.) What are the things you should cconsider when you are validating the requirements gathered by you? [05 marks]

Q2.

a.) What is meant by '***Daily Build***' and '***Smoke Testing***'? [04 marks]

b.) Write a simple test class to test the following methods. [06 marks]

```
public int add(int num1, int num2) {
    return num1 + num2;
}

public int getDiff(int num1, int num2) {
    if (num1 > num2)
        return num1 – num2;
    else
        return num2 – num1;
}
```

c.) Write the results of the test cases with the input values 4 and 6. [02 marks]

Q3. A software system is needed for an Automatic Teller Machine (ATM) system of a Bank. The verification of the customer's ATM card number has to be done as follows:

"If the inserted ATM card number is on the lost-stolen list, retain the card and suspend processing. Otherwise request for the customer's Personal Identification Number (PIN). If the PIN is correct continue with the required transaction. Otherwise request the PIN again. Customers are given three opportunities to enter the PIN correctly. They can continue with the required transaction once he/she enters the PIN correctly. If the PIN is wrong in the third attempt, the card is returned to the user and processing is suspended."

In the Software Requirement Specification document the above process has to be specified in pseudo code. The correct specification of the verify card process would be

```
If the entered card number is in the lost-stolen list Then
    Retain the card and Suspend processing
Else
    Repeat
        Request for PIN
        If the PIN is correct then
            Continue with the transaction
        Endif
        Until the PIN is correct or failed in the third attempt
            If failed in the third attempt Then
                Return the card and Suspend processing
            Endif
Endif
```

a.) Draw the flow-chart for the above algorithm. [06 mark

b.) Draw the flow-graph for the above algorithm. [06 mark

c.) State the three methods to find the Cyclomatic Complexity. [03 m

d.) Find the Cyclomatic Complexity of the above program using all three methods. [06 mar

e.) Find independent program paths. [03 mar