

UNIVERSITI TUNKU ABDUL RAHMAN

ACADEMIC YEAR 2018/2019

APRIL EXAMINATION

UCCD3064 SOFTWARE TESTING

SATURDAY, 27 APRIL 2019

TIME : 2.00 PM – 4.00 PM (2 HOURS)

BACHELOR OF COMPUTER SCIENCE (HONS)
BACHELOR OF INFORMATION TECHNOLOGY (HONS)
COMMUNICATIONS AND NETWORKING

Instruction to Candidates:

This question paper consists of THREE (3) questions in Section A and TWO (2) questions in Section B.

Answer **ALL** questions in **Section A** and **ONLY ONE (1)** questions in **Section B**.
Each question carries 25 marks.

Should a candidate answer more than ONE (1) questions in section B, marks will only be awarded for the FIRST questions in that section in the order the candidate submits the answers.

Candidates are allowed to use calculator.

Answer questions only in the answer booklet provided.

UCCD3064 SOFTWARE TESTING**SECTION A**

- Q1. (a) Do you agree that defects are not randomly and uniformly distributed throughout the software? Explain why such condition can occur. (4 marks)
- (b) Provide **THREE (3)** reasons on why a developer should not conduct tests. (3 marks)
- (c) Compare and Contrast the following terms: Quality Control, Quality Assurance and Testing. (6 marks)
- (d) After the completion of component tests on Function 1 (f1), Function 2 (f2) and Function 3 (f3), Mr. Lee (senior tester) decided to combine f1, f2 and f3 to perform integration test. When bugs were detected during the integration tests he opted to fix the bugs himself as he had past experience in software development. After the integration tests, he instantly applied the alpha and beta tests as the final test before deployment to the users.
- (i) Do you agree with the test approaches adopted by Mr. Lee? (Justify your answer). (4 marks)
- (ii) Recommend any improvement that can be adopted by Mr. Lee. (2 marks)
- (e) Explain the purpose of the following software tests:
- (i) Maintainability Test (2 marks)
- (ii) Usability Test (2 marks)
- (iii) Reliability Test (2 marks)
- [Total : 25 marks]
- Q2. (a) What can be done if there are repeated failures with the same types of effects caused by same type of defects? (4 marks)
- (b) “Software that had thorough testing and bugs fixing shall be well accepted by the users”
Do you agree with this statement? Justify your answer. (4 marks)
- (c) Differentiate local regression of defects and exposed regression of defects. (4 marks)

UCCD3064 SOFTWARE TESTING**Q2. (Continued)**

- (d) You are assigned as a tester to test a bank account system. The bank account system contains only basic features like account creation, deposit, withdrawal and account closure.

Implement the business process-based system testing level for the bank account System. (Explain the steps that are involved) (6 marks)

- (e) What is site acceptance test? How can site acceptance test be implemented? (5 marks)

- (f) How shall confirmation test be conducted after bug fixing in a module? (2 marks)

[Total : 25 marks]

- Q3. (a) Recommend **TWO (2)** approaches that a Test Manager can implement to prevent testers from testing exhaustively. (6 marks)

- (b) What are the **TWO (2)** reasons that design phase is more error prone than coding phase? (4 marks)

- (c) Why is isolation testing needed? Explain in details how isolation testing is achieved in component test level. (5 marks)

- (d) Propose **TWO (2)** solutions that are able to help inspectors/reviewers who do not have sufficient domain knowledge in preparation of inspection review. (4 marks)

- (e) What are the **THREE (3)** types of defects that cannot be detected by black box testing but can be detected by using static analysis? (6 marks)

[Total : 25 marks]

UCCD3064 SOFTWARE TESTING**SECTION B**

Q4. (a) With reference to the codes below:

```
bool isVowel (char ch)
{
    bool val = false;           //Line 1
    switch (ch) //Line 2
    {
        case 'a': case 'e': case 'i': case 'o': case 'u': // Line 3
            val = true; // Line 4
            return val; //Line 5
            break; //Line 6

        default: //Line 7
            return val; //Line 8
            break; //Line 9
    }
    return val; // Line 10
}
```

Identify any defect(s) with the control of the program by performing a control flow analysis using the Predecessor-Successor table. (7 marks)

- (b) What are **TWO (2)** capabilities of a test management tool? (4 marks)
- (c) What are the responsibilities between a test manager and a tester in the test process lifecycle? (4 marks)
- (d) What are the **THREE (3)** test cases of Boundary-Interior Coverage test in a loop? (3 marks)

UCCD3064 SOFTWARE TESTING**Q4. (Continued)**

- (e) With reference to the Table 4.1, determine commission rate earned based on sales of item achieved.

Types of item	Total Sales	Commission Rate
<u>Normal</u>	RM1,000 to RM 5,000	5%
	RM5,001 to RM 40,000	7%
	Above RM40,000	10%
<u>Luxurious</u>	RM10,000 to RM50,000	7%
	Above RM50,000	10%
<u>Special</u>	Any sales amount	5%

Table 4.1: Commission Rate based on Sales

- (i) Implement black box decision table testing and identify all of the test cases. (6 marks)
- (ii) Recommend **another** suitable black box testing technique to test the conditions in Table 4.1 (1 mark)
- [Total : 25 marks]

- Q5. (a) What is condition coverage in white box testing? (2 marks)
- (b) Explain **TWO (2)** possible weaknesses of exploratory testing. (4 marks)
- (c) What are the actions that a test manager shall perform when bugs are detected by a tester and noted in the Test Log? (Explain the steps involved) (5 marks)
- (d) In a library system, a new book will be made as available after processing the necessary details and indexing. Available book will be placed under on loan status while the book is being borrowed by a student. On the other hand the book shall be placed under the status of under reservation if it is reserved by a student online. Once the student returns the book and is approved by the librarian, the book status shall be back to available. The librarian shall perform stock checking from time to time. Books that are at available status will change to lost status if the book is not found during stock checking. With reference to the book status, perform a state transition test. You are required to show all the possible test cases. (8 marks)
- (e) What is the relation between test procedure, test suite and test script? (6 marks)

[Total : 25 marks]

