ZIMBABWE OPEN UNIVERSITY

"Empowerment Through Open Learning" ®

Faculty of Technology

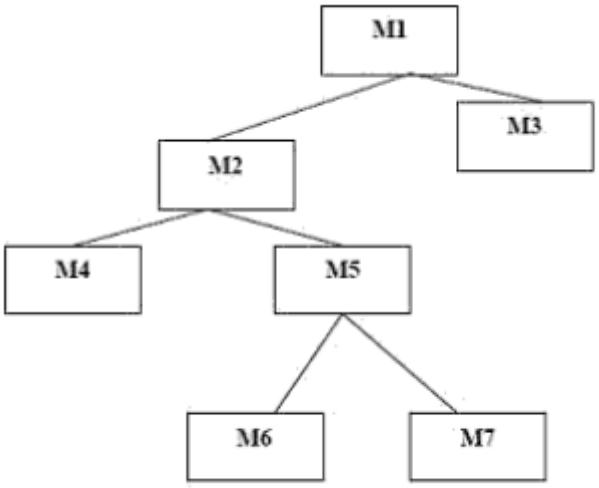
BSEH 344 Software Testing: Assignment 2

DUE DATE: 31 MARCH 2019

NB: Please be advised that all students are to adhere to the prescribed due date.

QUESTION 1

The following figure illustrates the component hierarchy in a software system.



a. Describe the sequence of tests for integration of the components using a bottom-up approach and a top-down approach. [10]
b. Consider the following program

```
1     Program OddandEven
2
3     A, B: Real;
4     Odd: Integer;
5
6     Begin
7           Read A
8           Read B
9           C = A + B
10          D = A - B
11          Odd = 0
12
13          If A/2 DIV 2 <> 0 (DIV gives the remainder after division)
14          Then Odd = Odd + 1
15          Endif
16
17          If B/2 DIV 2 <> 0
18          Then Odd = Odd + 1
19          Endif
20
21          If Odd = 1
22          Then
23                Print ("C is odd")
24                Print ("D is odd")
25          Else
26                Print ("C is even")
27                Print ("D is even")
28          Endif
29 End
```

i. Draw a flow chart and a control flow graph to represent the following code [5]
ii. Calculate the cyclomatic complexity of the control graph [5]
iii. Write down input values for test cases that satisfy McCabe's base path coverage [5]

QUESTION 2

a) In terms of exploratory testing, what is a charter and a session? What is the difference between the two? [5]

b) Explain the advantages and disadvantages of automated test scripts (checking) versus exploratory testing (exploring) with respect to costs, and how defects are detected and located. [10]

c) Explain what "white-box testing" is. Explain one test case design methodology that can be used for white-box testing. [5]

d) Describe and explain the relationships between the following terms:

- Error
- Defect

• Failure

• Incident

• Test case

• Test [5]

The end