# UTHM
Universiti Tun Hussein Onn Malaysia

# UNIVERSITI TUN HUSSEIN ONN MALAYSIA

## FINAL EXAMINATION
## SEMESTER II
## SESSION 2018/2019

| | | |
|---|---|---|
| COURSE NAME | : | SOFTWARE QUALITY ASSURANCE |
| COURSE CODE | : | BIE 30703 |
| PROGRAMME CODE | : | BIP |
| EXAMINATION DATE | : | JUNE/JULY 2019 |
| DURATION | : | 3 HOURS |
| INSTRUCTION | : | ANSWER **ALL** QUESTIONS |

THIS QUESTION PAPER CONSISTS OF **SEVEN (7)** PAGES

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**Q1** As part of the improvement program, the organization is also looking at tool support. Which type of tool could be used to ensure higher quality of the code to be reviewed?

    A    Review tool.
    B    Test execution tool.
    C    Static analysis tool.
    D    Test design tool.

    (2 marks)

**Q2** Which of the following is least likely to be used as a technique to identify project and product risks?

    A    Brainstorming.
    B    Inspections.
    C    Expert Interview.
    D    Independent Assessements.

    (2 marks)

**Q3** Which of the following is consisted in the master test plan?

    A    A description of how the test cases are cross-referenced to requirements in the test management tool.
    B    A detailed identification of the resources that will carry out structural testing in the first iteration.
    C    The test approach that will be applied at system integration testing.
    D    A list of the names of the testers who will carry out the performance testing for the final iteration.

    (2 marks)

**Q4** Test Manager should not _____.

    A    report on deviations from the project plan
    B    sign the system off to release
    C    re-allocate resource to meet original plans
    D    provide information for risk analysis and quality improvement
    (2 marks)

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**Q5**    Which of the following is a KEY task of a tester?

A    Reviewing test developed by others.
B    Writing a test strategy for project.
C    Deciding what should be automated.
D    Writing test summary reports.

(2 marks)

**Q6**    How many statement(s) and branch(es) coverage are needed to test the following code in **Figure Q6** ?

```
WHILE(A>B) {
    C = A-B
}
C =  A + B
READ D
IF C =D
    THEN PRINT "ERROR"
ENDIF
```

**Figure Q6**

A    1 for statement coverage, 2 for branches coverage.
B    2 for statements coverage, 2 for branches coverage.
C    2 for statements coverage, 3 for branches coverage.
D    3 for statements coverage, 2 for branches coverage.

(2 marks)

**Q7**    Which of the following test cases and expected results is **VALID** based on Decision Table in **Figure Q7**?

| Condition | Rule1 | Rule2 | Rule3 | Rule4 |
|---|---|---|---|---|
| Age | <21yrs | 21-29yrs | 30-50yrs | >50yrs |
| Insurance Class | A | A or B | B, C or D | C or D |
| Actions | | | | |
| Premium | 100 | 90 | 70 | 70 |
| Excess | 2500 | 2500 | 500 | 1000 |

**Figure Q7**

A    23 year old in insurance class A Premium is 90 and excess is 2500.
B    51 years old in insurance class C Premium is 70 and excess is 500.
C    31 years old in insurance class B Premium is 90 and excess is 2500.
D    43 years old in insurance class C Premium is 70 and excess is 1000.

(2 marks)

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**Q8**     Which of the following would be categorized as product risks?

    A     Skill and staff shortages.
    B     Immature development.
    C     Failure-prone software delivered.
    D     Communication of tester.

(2 marks)

**Q9**     When should incident is reported?

    A     During tests planning.
    B     During test analysis.
    C     During test execution.
    D     During test log writing.

(2 marks)

**Q10**    Which of the a success factors when deploying a new tool in an organization?

    A     Providing coaching to users and defining usage guidelines.
    B     Monitoring tool usage and reducing the need for risk analysis.
    C     Improving processes and focusing more on component testing.
    D     Assessing testing completion and minimizing code reviews.

(2 marks)

**Q11** Based on **Figure Q11**, state **TRUE** or **FALSE** for following questions.

One of the test goals for the project is to have 100% decision coverage. The following three tests have been executed for the control flow graph shown below.

Test A covers path: A, B, D, E, G.
Test B covers path: A, B, D, E, F, G.
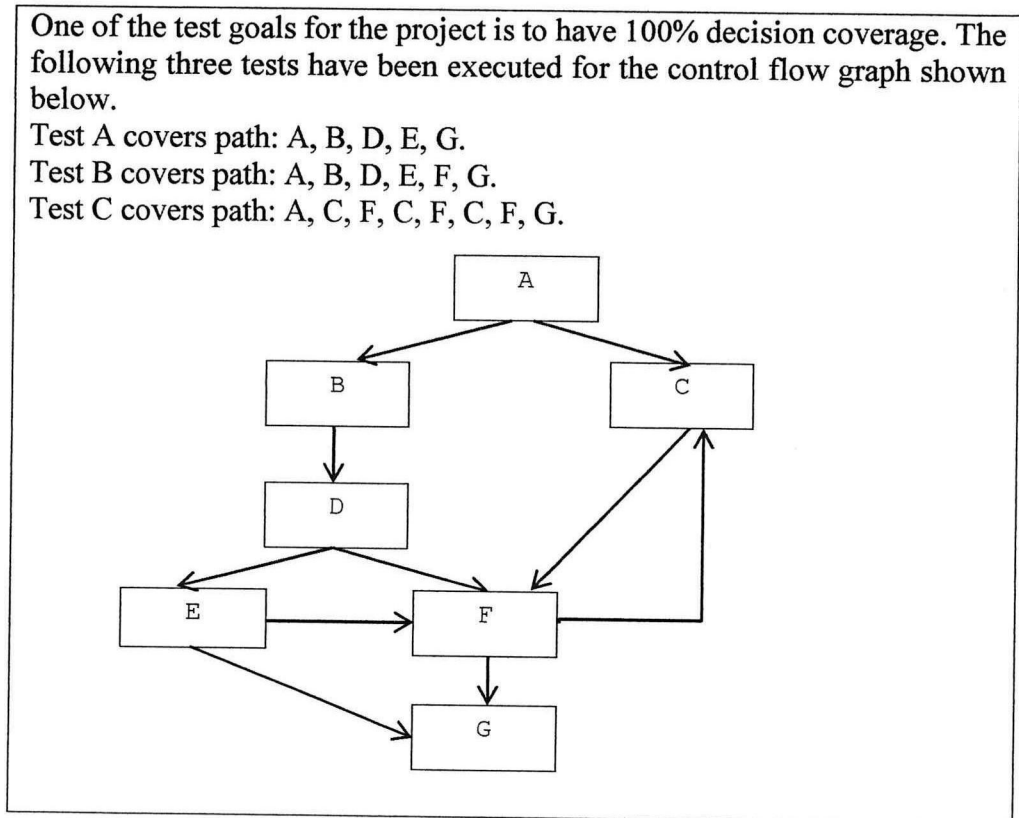Test C covers path: A, C, F, C, F, C, F, G.



**Figure Q11**

a) Decision D has not been tested completely

(2 marks)

b) 100% decision coverage has been achieved

(2 marks)

c) Decision E has not been tested completely

(2 marks)

d) Decision F has not been tested completely

(2 marks)

e) Decision C is tested completely.

(2 marks)

**Q12** a)   Identify **THREE** **(3)** main benefits of using systematic test design techniques.

(6 marks)

b)   State **TWO (2)** roles that needed to enhance a testing team.

(4 marks)

**Q13**   A system designed is analyze for tax to be paid: An employee received RM4000 of salary tax free. The next for additional RM1500, 10% tax is deducted. The next RM28000 is taxed at 22%. Any further amount is taxed at 40%. Based on scenario given, P1, P2, P3 are equivalence classes and bv1, bv2, bv3, bv4 and bv5 are for boundary value equivalence is draw in **Figure Q13**.
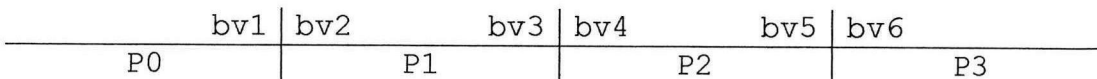
| | bv1 | bv2 | | bv3 | bv4 | | bv5 | bv6 | |
|---|---|---|---|---|---|---|---|---|---|
| PO | | P1 | | | P1 | | P2 | | P3 |

**Figure Q13**

a)   Determine equivalance classes for

    i.   P1

    ii.   P2

    iii.   P3

(6 marks)

b)   Determine test inputs for

    i.   bv1

    ii.   bv2

    iii.   bv5

(9 marks)

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**Q14** Discuss **THREE (3)** differences between Exploratory and Error Guessing Testing.

(15 marks)

**Q15** Questions **Q15(a) – Q15(c)** are based on **Figure Q15**.

```
While(width != length)
    If (width > length) then
            width = width - length
    else
            length = length - width
    End if
End while
```

**Figure Q15**

(a)     Derive a flow graph.

(15 marks)

(b)     Define the maximum number of test cases needed to provide statement coverage. For each test case, give an example set of input.

(5 marks)

(c)     Define the maximum number of test cases needed to provide branch condition coverage. For each test case, give an example set of input. [Show your works]

(10 marks)

- END OF QUESTIONS -

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