

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- Dec 2017

B.Tech 5th Semester

COURSE CODE: 10B1WCI515

MAX. MARKS: 35

COURSE NAME: SOFTWARE TESTING AND DEBUGGING

COURSE CREDITS: 04

MAX. TIME: 2Hrs.

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q1.

[1x5=5]

- Do you consider positive or negative testing to be most important or trying to break the system - and why?
- How would you define a good test?
- List the various stages of software testing.
- Do you consider testing tools to be valuable during the testing process – why/why not?
- Describe what you understand about the term “Static Testing” and list 3 static testing techniques.

Q2.

You are testing 2 programs and have 3 weeks to test them both. Having run all of your tests on both programs you finish testing within 2 weeks. You need to decide which of the 2 programs you would re-visit and run further tests against. Choose which program you would re-test (can choose only one!) – and state your reasons.

[4]

Program A

Programmer: A

Complexity Level: 2

Lines of Code: 2000

Number of tests: 100

Number of bugs found: 10

(1 high severity, 3 medium & 6 low)

Program B

Programmer: B

Complexity Level: 2

Lines of Code: 2000

Number of tests: 100

Number of bugs found: 50

(10 high severity, 25 medium & 15 low)

Q3.

- A hotel telephone system can perform 3 functions:

- Call another hotel room by entering a room number (201 to 500)
- Call an external line by entering a 9, followed by the number
- Call various hotel services
 - 0 = Operator
 - 7 = Room Service
 - 8 = Reception

Design a set of test cases to adequately test this telephone system by using appropriate testing strategy.

[3]

- What are the principles and main challenges of testing Web applications?

[3]

Q4.

```

1 main(){          1 int g1(int a, b){ 1 int g2 (int a, b){
2 int x,y,p;      2 int a,b;          2 int a,b;
3 input (x,y);    3 if(a+ 1==b)        3 if(a==(b+1))
4 if (x<y)        4 return(a*a);    4 return(b*b);
5 p=g1(x,y);      5 else                5 else
6 else            6 return(b*b); 6 return(a*a);
7 p=g2(x,y);      7 }                7 }
8 endif
9 output (p);
10 end
11 }

```

For the above given main(), g1(), and g2() functions, answer the following:

- Design the control flow graph [3]
- Calculate the cyclomatic complexity using any three methods as discussed in the class. [1]
- Calculate the module design complexity ($iv(G)$) and integration complexity (S). Design Integration test paths. [3]
- Design the set of test cases 'T'. [1]
- Suppose the statement given at Line 3 in g1() function is replaced with if (a- 1== b), Then do the regression testing for the same and find How many test case will be required from set T? Also design the new set of test cases 'T1' [4]

Q5.

- a) Explain bug life cycle with the help of a diagram? Explain, in short about the different states a bug goes through during the bug life cycle. Describe the scenario when there is a clash of opinion about a particular bug between a tester and a developer along with how such a situation would be resolved. [5]
- b) Compare top down integration testing with bottom integration testing with their respective pros and cons. From the diagram given below derive sequence of integration to be done using top down and bottom up integration approaches. Here M1, M2 etc denotes the subordinate modules whereas Main is the main module. [4]

