Registration No: | | | | | | | | | | |

Total Number of Pages: 03 **B.Tech.**
PIT5J003

5th Semester Regular Examination 2017-18
Software Testing
BRANCH: IT
Time: 3 Hours
Max Marks: 100
Q.CODE: B485

Answer Question No.1 and 2 which are compulsory and any four from the rest.
The figures in the right hand margin indicate marks.

Q1 Answer the following questions: *multiple type or dash fill up type* **(2 x 10)**

a) What is the order in which the test levels are performed?
a) Unit,Integration, System,Acceptance
b) Unit ,System, Integration,Acceptance
c) Unit, Integration, Acceptance, System
d) It depends on nature of the project.

b) System testing is a
a) Black box testing
b) White box testing
c) Grey box testing
d) Both a and b

c) In the early stages of SDLC, testing comprises more _____ activities and towards the later stages, the emphasis is on the _____ activities.
verification, validation
validation, verification
integration, coding
coding, integration

d) If there are *k* rules over *n* binary conditions, then there are at least _____ test cases and at most _____ test cases.
$k + 2, 2^{n+2}$
$k+3, 2^{n+3}$
$k, 2^n$
k, n^n

e) In single character data anomalies, ~d is ____
Potential bug
Normal situation
Harmless bug
None of the above

f) "How much evaluation of an item, has been done by the team " is called _____
rate of errors
rate of inspection
rate of failures
none of the above

g) Security requirements should be associated with each _____ requirement.
functional
design
coding
testing

h) Which statement best characterizes the regression test selection?
Minimize the resources required to regression test a new version
Typically achieved by minimizing the number of test cases applied to the new version
Select a test case which has caused the problem
None of the above

i) _____ integration testing is preferred while planning integration test
Top down
Bottom up
Sandwich
None of the above

j) Coverage is measured in terms of the _____that are imposed
Requirements
Design
Test cases
None of the above

Q2 **Answer the following questions: *Short answer type*** **(2 x 10)**

a) What is defect bash?
b) Describe any 2 testing axioms with proper explanation.
c) What is defect prevention?
d) Briefly describe the architecture for test automation.
e) What is configuration testing?
f) A program calculates the total salary of an employee with the conditions that if the working hours are less than or equal to 48, then give normal salary. The hours over 48 on normal working days are calculated at the rate of 1.25 of the salary. However on holidays or Sundays, the hours are calculated at the rate of 2.00 times of the salary. Design the test cases using decision table testing.
g) How can bugs be classified based on criticality?
h) What is gray box testing?
i) What is unit verification?
j) Mention any two commercial testing tools.

Q3 **a)** What is verification? How to verify high level designs? Also distinguish between verification and validation. **(10)**

b) What is integration testing? Reflect the differences between the different types of integration testing of object oriented programs. **(5)**

Q4 **a)** What is static testing? State the types of static testing. How is it different from structural testing? **(10)**

b) Discuss the challenges in testing web based software. **(5)**

Q5 **a)** Discuss the testing tools based on testing activities or tasks in a particular phase of SDLC. **(10)**

b) A program has to be designed to determine the nature of roots of a quadratic equation. The quadratic equation takes three input values from the range [0,100]. Design the test cases using the cause-effect graphing technique. **(5)**

Q6 **a)** Describe the test management process. **(10)**

b) Describe the people involved in testing groups along with theirresponsibilities. **(5)**

Q7 **a)** What is acceptance testing? State its entry and exit criteria. Describe the different types of acceptance testing along with their entry and exit criteria. **(10)**

b) Consider the following program: **(5)**
main()

```
{
int a, b, c, sum,diff,mul;
scanf("%d %d %d", &a, &b, &c);
   sum = calsum(a,b,c);
   diff= caldiff(a,b,c);
mul = calmul(a,b,c);
printf("%d %d %d", sum,diff,mul);
}

intcalsum(int x, int y, int z)
{
int d;
   d= x + y +z;
   return (d);
}
```

Suppose main() module is not ready for the testing of calsum() module. Design a driver module for main ().
Modules caldiff() and calmul() are not ready when called in main(). Design stubs for these two modules.

Q8 **a)** A program computes a^b where *a* lies in the range [1, 10] and *b* within [1, 5]. Design test cases for this program using Boundary Value Checking, Robust Checking and Worst – Case testing methods. **(10)**

b) Draw the control flow graph for the following function named *find_maximum*. Form the control flow graph, determine its cyclomatic complexity. **(5)**

```
intfind_maximum ( inti, int j, int k)
{
int max;
        if (i>j)
            if (i>k)
                 max= i;
            else
                 max= k;
        else if (j>k)
                 max= j;
          else
               max = k;
return (max);
}
```

Q9 **a)** Discuss the Software Testing Life Cycle (STLC) **(10)**

b) Explain the difference between failure, fault and error with a suitable example. **(5)**