**AKGEC/IAP/FM/02**

**Ajay Kumar Garg Engineering College, Ghaziabad**

**Department of CSE**

**SessionalTest-2**

Course: B.Tech Semester: VII

Session: 2017-18 Section: CS1,2,3,IT -1,2

Subject: Software Testing and Audit Sub. Code: NCS071

Max Marks:50 Time: 2 hour

***Note*** : Answer **all** the Sections.

**Section-A**

**A.** Attempt **all** the parts. **(5 X 2 = 10)**

(1)What is the significance of cyclomatic complexity?

(2)What is defect seeding?

(3) What is the role of risk matrix for the reduction of test cases?

(4) Difference between functional and structural testing?

(5)What are differences between directed graph and undirected graph? Which one is more relevant in software testing and why?

**Section-B**

**B.** Attempt **all**the parts. **(5X 5 = 25)**

(6) Explain the code coverage prioritization technique. What are the test cases selection criterion ? Write the modification algorithm which is used to minimize and prioritize test cases. (Assume data wherever necessary.)

(7) How does Regression Testing helps in producing quality software?

(8)Explain Equivalence class testing technique. How it is different from Boundary value analysis technique.

(9) Discuss the significance of Decision Table in Testing. What is the purpose of a rule count? Explain the concept with the help of an example.

(10)Write short notes on following:-

(i) Mutation testing

(ii) Basic notations and constraints used in cause effect graph.

**Section-C**

**C.** Attempt **all**the parts. (2 **X 7.5 = 15)**

(11)The following conditions must be fulfilled in order to get money from an ATM machine,

• The bankcard is valid

• The PIN must be correctly entered

• The maximum number of PIN Inputs is three

• There is money in the machine, and in the account

The following actions are possible at the machine:

• Reject Card

• Ask for another PIN input

• “Eat” the card.

• Ask for an alternate dollar amount

• Pay the requested amount of Money

Draw the cause-effect graph for the above given problem. Create the decision table and then design the test cases.

(12) Consider the program to find the roots of a quadratic equation.

#include <stdio.h>

#include <math.h>

int main()

{

double a, b, c, determinant, root1,root2, realPart,imaginaryPart;

printf("Enter coefficients a, b and c: ");

scanf("%lf %lf %lf",&a, &b, &c);

determinant = b\*b-4\*a\*c;

if (determinant > 0)

{

root1 = (-b+sqrt(determinant))/(2\*a);

root2 = (-b-sqrt(determinant))/(2\*a);

printf("root1 = %.2lf and root2 = %.2lf",root1 , root2);

}

else if (determinant == 0)

{

root1 = root2 = -b/(2\*a);

printf("root1 = root2 = %.2lf;", root1);

}

else

{

realPart = -b/(2\*a);

imaginaryPart = sqrt(-determinant)/(2\*a);

printf("root1 = %.2lf+%.2lfi and root2 = %.2f-%.2fi", realPart, imaginaryPart, realPart, imaginaryPart);

}

return 0;

}

Explain Data Flow testing in detail. Draw program graph, DD path graph. Find the cyclomatic complexity and independent paths. Also find all du path in the program graph.