National University of Computer and Emerging Sciences, Lahore Campus

Course:	Software Quality Assurance & Management	**Course Code:**	CS 519
Program:	MS (SPM)	**Semester:**	Fall 2018
Duration:	180 minutes	**Total Marks:**	50
Paper Date:	20-12-2018	**Weight**	40
Section:	MS	**Page(s):**	2
Exam:	Final Term		

Instruction/Notes:
1. State all your assumptions explicitly
2. Read and understand the cases/questions carefully before answering the questions

---

1) Consider the following code: (15)
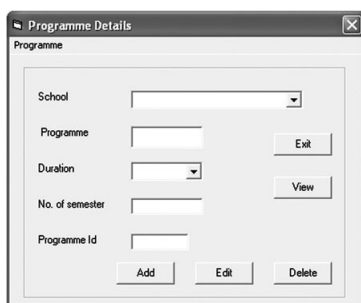
```
void Complexity (int i, int j)
{
        if(i > 0 && j > 0){
                while (i > j){
                        if (i%2 && j%2)
                                cout << i << endl;
                        else
                                cout << j << endl;
                        i--;
                }
        }
}
```

a. Draw control flow graph
b. Calculate cyclomatic complexity
c. Identify independent paths

2) Consider the "Maintain programme detail" form of the University Registration System as given below:

(20)

This form will only be accessible to System Administrators. It will allow them to

---

add/edit/delete/view information about new/existing programme(s) for the school. Following are the validation checks:

i.   Every programme will have a unique code and name.
ii. School name is mandatory.
iii. Programme name is mandatory.
iv. Programme can be of length 3 to 50 characters. It can only have brackets and alphabets.
v.   Duration cannot be blank and it can have a value from 1 to 7.
vi. Number of semesters is mandatory.
vii. Number of semesters can have a value from 2 to 14.
viii.   Programme code is mandatory.
ix. Programme code can have only 2 digits.

    a. Write use case for adding programme details
    b. Draw scenario diagrams
    c. Create scenario matrix
    d. Create equivalence class partitions of all variables
    e. Calculate total number of test cases

3) There are three different methodologies for team review of design documents.   (10)

    a. Which of the methodologies should a software development organization choose?
    b. Can more than one method be chosen and applied for same document? Alternatively, is it recommended to apply all three methods? List your arguments.
    c. Write down steps for formal design review specific for functional specifications document.

4) Explain in your own words the expected benefits of using CASE tools for software system developers and software maintenance teams.
    (5)