Course Code : CST 315 **MQNR/MW – 19 / 9608**

Fifth Semester B. E. (Computer Science and Engineering) Examination

SOFTWARE ENGINEERING

Time : 3 Hours] [Max. Marks : 60

Instructions to Candidates :—

(1) All questions carry equal marks.
(2) Solve any **Two** from Question **One**, **Two** and **Three**. Internal choices in questions **Four**, **Five** and **Six**.
(3) Due credit will be given to neatness and adequate dimensions.
(4) Assume suitable data wherever necessary.
(5) Illustrate your answers wherever necessary with the help of neat sketches.
(6) Mobiles phones are prohibited in examination hall.

1. (a) Clarify the important differences between the agile model and RAD model. 5(CO1)

   (b) Discuss in detail the unified process along with its constituent phases by Jacobson, Booch and Rumbaugh. 5(CO1)

   (c) Why process is essential in software engineering ? Describe a software process framework with neat diagram. 5(CO1)

2. (a) (i) When should you use Waterfall over Scrum ? 3(CO1)

   (ii) What qualities should a good Agile tester have ? 2(CO1)

   (b) Discuss Product backlog and Sprint Backlog with appropriate example. 5(CO1)

   (c) The successful use of XP is based on certain conditions. If these do not exist, then its practice could be difficult. Describe those conditions. 5(CO1)

3. (a) Provide an insight to various task of requirement engineering. Elaborate the term requirement elicitation. 5(CO2)

(b) Consider a Liabrary management system which contains various hierarchical components such as Finance, Domain, Library Manager, Students, Article providers etc. Define the set of domains that describe all four views in terms of different components that must be engineered. 5(CO2)

(c) Enlist and explain the set of design modeling principles. 5(CO2)

4. (a) Draw use-case and activity diagram for supermarket. This will consider various points such as parking space, fresh food items, low priced items, cleaning and computer facility etc. 10(CO2)

OR

(b) Describe the diagrammatic translation of analysis model into design model. Also Provide an insight to following statements with respect to design modeling :

(i) How can you deal with complexity ?

(ii) Identification of poorly constructed or inappropriate data structure. 10(CO2)

5. (a) (i) Draw the flow graph and find the cyclomatic complexity using all three methods for the following code :—

```
public void howComplex() {
int i=20;
    while (i<10) {
System.out.printf("i is % d",i);
    if (i%2 == 0) {
System.out.println("even");
    } else {
System.out.println("odd");
     }
   }
}
```

Design a set of test cases that will ensure that all statements have been executed using basis path testing. 4(CO3)

(ii) Also clarify that which testing technique is suitable to test the behavior of whole system or product ? 2(CO3)

(b) "Highly coupled module is difficult to unit test". Justify the statement with programming example. 4(CO3)

OR

(c) Let's assume that there is an application which maintains the details of all the students in school. This application has four buttons Add, Save, Delete and Refresh. All the buttons functionalities are working as expected. Recently a new button 'Update' is added in the application. This 'Update' button functionality is tested and confirmed that it's working as expected. To find the correctness and new issues in the existing code which testing technique will be used ? Justify your answer. 4(CO3)

6. (a) You are the project manager for a major software company. You have been asked to lead a team that's developing" next generation" word-processing software. Create a risk table for the project. 4(CO4)

(b) Classify the different categories of software measurement. 3(CO4)

OR

Describe the software metrics Baseline process with neat sketch.

(c) ——— is a method of bringing control to the software development and software management process. Identify the need and importance of this method. 3(CO4)