Course Code : CST 315 / CST 303 **ITSJ/RW – 17 / 1055**

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

SOFTWARE ENGINEERING

Time : 3 Hours] [Max. Marks : 60

Instructions to Candidates :—

(1) All questions carry marks as indicated against them.
(2) Due credit will be given to neatness and adequate dimensions.
(3) Assume suitable data and illustrate answers with neat sketches wherever necessary.

1. (a) Outline the reasons for the failure of Water Fall Model. 3 (CO 1)

   (b) Why does the failure rate curve for software deviate from being an idealized curve ? 2 (CO 1)

   (c) Discuss the Extreme Programming approach of Agile methodology. 5 (CO 1)

OR

   (d) What is a process framework ? Explain the framework activities applicable to all software projects. 5 (CO 1)

2. (a) Enlist and explain the set of testing principles that need to be followed as a part of efficient software engineering practice. 6 (CO 1, CO 2)

   (b) Briefly describe the classes of requirements identified in Quality Function Deployment technique. 4 (CO 1, CO 2)

3. (a) Explain the rules of thumb for analysis modeling. 6 (CO 2)

   (b) Interpret and explain the combination of ideal coupling and cohesion that results in functional independence. 4 (CO 2)

4. (a) Consider the pseudo – code given below :

```
Procedure : reserveVideoCopy return (result)
If (status = "available") OR ((status = "rented")
AND (returnDate ≤ requestDate))
status = "reserved"
link video copy instance to member instance
result = "success"
Else
result = "failure"
Endif
End
```

Draw a flow – graph representation for the above pseudo – code ; compute its cyclomatic complexity values using all available information. Indicate the regions and predicate nodes on the flow – graph clearly. Enlist the independent paths for the code. 4 (CO 3)

(b) "Regression testing is an important strategy for reducing 'side effects' in a program." Justify. 2 (CO 3)

(c) Illustrate with an example how the technique of equivalence partitioning is supportive in deriving test – cases. 4 (CO 3)

OR

(d) Suggest a hierarchy of software testing sequence for producing 100% bug – free software. 4 (CO 3)

5. (a) Compute function point value for a project with the following information domain characteristics – Number of user inputs : 32, Number of user output : 60, Number of user enquiries : 24, Number of files : 08, Number of external interface : 02. The overall project is relatively average. Assume that all complexity adjustment values are average. Assume that 14 algorithms have been counted. 4 (CO 4)

(b) What is an Earned Value Analysis and how can it be employed to assess progress of a project ? 3 (CO 4)

(c) Explain the significance of McCall's quality factors. Elaborate on product revision factors. 3 (CO 4)

6. (a) Explain the activities involved in the Business Process Re–engineering Model. 6 (CO 4)

(b) Describe the responsibilities assigned to the Software Quality Assurance Group. 4 (CO 4)

OR

(c) Enlist and explain the functions that are implemented by a SCM repository. 4 (CO 4)