

### B3.3-R3: SOFTWARE ENGINEERING & CASE TOOLS

**NOTE:**

1. Answer question 1 and any FOUR questions from 2 to 7.
2. Parts of the same question should be answered together and in the same sequence.

**Time: 3 Hours**

**Total Marks: 100**

1.
  - a) Explain the advantages and the disadvantages of making use prototyping process model for the purpose of software development.
  - b) What is the difference between black box and white box testing?
  - c) Explain any two approaches for the subsystem design. Which one do you think is better?
  - d) What are the outcomes and artefacts generated in the architectural analysis?
  - e) What is dependability of software? What are the various dimensions of dependability?
  - f) What is meant by the software versions and release? Illustrate by an example.
  - g) Explain the role of recursive testing and its role in the integration testing.

**(7x4)**
2.
  - a) What are requirement specifications and how are they different from the software specifications.
  - b) Derive two different metrics for software availability and give their utility.
  - c) Use cases play an important role in deriving software requirements. What are the ways in which the use cases by verified for correctness?

**(6+6+6)**
3.
  - a) Explain what could be the different non-functional requirements for a word processing editor.
  - b) State reasons as to why is the Rational Unified Process said to be use-case driven.
  - c) What is reverse engineering? How can a CASE tool help in the reverse engineering of software?

**(5+6+7)**
4.
  - a) What is stress testing? In which situations do we carry out the stress testing? Give examples.
  - b) What are the different parts of configuration management planning?
  - c) How can we validate a design of the software? What is a good design? Enumerate the various features.

**(6+6+6)**
5.
  - a) What are the various methods for requirements elicitation for an object-oriented description of a system?
  - b) Explain the big bang testing approach to software testing?
  - c) What are the advantages and disadvantages of the component approach to software design?

**(6+6+6)**
6.
  - a) Explain the difference between a subsystem and a package?
  - b) Discuss the metrics for a class?
  - c) Explain, how does the object oriented approach to software development help to make extensible software design?

**(6+6+6)**

**7.**

- a) Differentiate between design patterns and frameworks?
  - b) What is the role of domain analysis in making the business use cases?
  - c) Elaborate any techniques for measuring the usability of a good user interface design?
- (5+6+7)**