

CE6-R3: SOFTWARE QUALITY MANAGEMENT

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) Are SQA activities planned? Does project follow a written organizational policy for implementing SQA?
 - b) How does ISO define a Quality Management System?
 - c) Explain briefly, defect prevention is crucial to the software process.
 - d) Describe various techniques that help to enhance the software quality.
 - e) What do Software Quality and Software Quality Management mean? Why quality standards are needed?
 - f) Differentiate "Bugs", "Errors" and "Defects".
 - g) Mention the project parameters that affect the quality of product. Define cost of quality.
(7x4)

2.
 - a) List the constituency and their tasks to conduct software quality assurance. Also enlist the activities conducted by SQA group for attaining a high quality end product.
 - b) Discuss the relative merits of ISO 9001 certification and the SEI CMM-based quality assessment.
 - c) Explain about the dynamic software reliability models.
(6+6+6)

3.
 - a) What do you understand by the Software Capability Maturity Model (SW-CMM)? What are the characteristics of five stages of the SW-CMM?
 - b) Static Analysis is a technique for assessing the structural characteristics of source code. Explain this technique by taking a simple example. Bring out the utility and limitations of static analyzers.
(9+9)

4.
 - a) What is stress testing? How is it performed? Why is stress testing applicable to only certain types of systems?
 - b) Design the black-box test suite for a program that accepts two strings and checks of the first string is a substring of the second string and displays the number of times the first string occurs in the second string.
 - c) Develop a test plan for exhaustive testing of a program that computes the roots, all possible types, of a quadratic equation.
(6+6+6)

5.
 - a) How widely have rigorous Software Engineering Practises have been adopted?
 - b) Discuss the dilemma that Gavin's Product-Based view versus Value-Based view of quality, present software developers?
 - c) 'A software metric is a measurable property which is an indicator of one or more of the quality criteria that we are seeking to measure', explain the statement.
(6+6+6)

6.

- a) Explain the five point satisfaction scale used in customer satisfaction surveys.
- b) Discuss the salient features of graphical interface testing. How is it different from WWW Testing?
- c) Give a broad classification of the different types of program analysis tools used during program development. What are the different types of information produced by each type of tool?

(6+6+6)

7.

- a) Explain with suitable example the concept of software auditing.
- b) Describe SPICE in detail.
- c) List the factors affecting:
 - i) Product Revision, and
 - ii) Product Transition

(6+6+6)