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(2064)

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M. Tech 2nd Semester Examination

Software Quality and Testing

MT-205

Time : 3 Hours

Max. Marks : 100

*The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.*

**Note :** All questions are compulsory. Attempt any one in question 1 to 8. Attempt any 5 in question 9.

1. What is Software Quality Assurance? What are various activities involved in SQA? (2+8=10)

OR

What is ISO 9001 and how they are applied in Software Context? Discuss (10)

2. Write a note on comparison of various software quality models; Factor-criteria metric, MC call, Boehm, Dromey and Star Model. (10)

OR

Discuss about various Software Design Metrics for complexity, coupling, cohesion and Inheritance. (10)

3. What is Test Case and why the testing need to be planned? What are various levels of testing? (2+2+6=10)

OR

Why Design Metrics are more popular than code metrics? Which is stronger testing:- Data flow based or path testing. Give reason of your answer with example. (5+5=10)

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4. What are milestones and deliverables? Why are they needed in software development process? Discuss (10)

OR

What are the significance of given listing techniques: White-box, Black-box, Grey-box, red-box, green-box. (10)

5. Give three examples in which black box listing might give an impression that everything is OK while white box testing does incover an error. Also give three examples for vice-verse. (10)

OR

Write a note on comparison of structured and object oriented approach of software development. (10)

6. What is component based software development and how it helps in improving testing techniques. (10)

OR

Write a note on various factors that helps improving quality of software. Mention its all direct and indirect attributes of quality. (10)

7. Compare SATC's approach of Software Quality Metrics development with Kitchenham's and Abreu's approach. (10)

OR

Assume you work for an organization that develops database products for individuals and small businesses. The organization is interested in quantifying its software development. Write a report suggesting metrics and how those metrics can be collected? (10)

8. Explain how software development planning helps in effective software products? (10)

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OR

- (a) Discuss on Six Sigma Quality initiative? To which category of industry is it applicable?
  - (b) What are stubs and drivers in context of integration and unit testing of software. (10)
9. Attempt any 5 questions. Each question carries 4 marks.
- (a) What are static and dynamic software metrics?
  - (b) How coupling and cohesion affect the software quality?
  - (c) What is regression testing? What is its significance?
  - (d) Write a note on Halstead Software Sciences metric?
  - (e) Write a note on various types of software designs?
  - (f) What is ISO 9001 certificate?
  - (g) What are the standards that applies to software industry?