

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2523

Roll No.

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B.Tech.

(SEM. VI) THEORY EXAMINATION 2011-12

SOFTWARE QUALITY ENGINEERING*Time : 3 Hours**Total Marks : 100***Note :—** (1) Attempt *all* questions.

(2) Make suitable assumptions wherever necessary.

1. Attempt any *four* parts of the following :— (5×4=20)
- (a) Give the definition of quality and software quality from a customer's perspective.
 - (b) Give the interrelationship of the different software attributes.
 - (c) What are the different basic tools for quality control ?
 - (d) Explain the terms : defect, defect rate, and defect prevention.
 - (e) Reliability is an important issue of measuring quality. Comment.
 - (f) Discuss in brief the need of documents and metrics in S/W quality engineering.

2. Attempt any *two* parts of the following :— (10×2=20)
- (a) Discuss the differences and similarities between mean time to failure and defect density (rate) metrics.
 - (b) (i) What is net satisfaction index (NSI) ? Describe with example.
(ii) What are the requirements of customer problem metric ? Explain.
 - (c) Explain the following :—
 - (i) Fix Backlog and Backlog Management index.
 - (ii) Fix response time and fix responsiveness.
3. Attempt any *two* parts of the following :— (10×2=20)
- (a) Discuss the basic assumptions involved in the Rayleigh curve model of software development quality.
 - (b) Quality and Reliability are related concepts, but are fundamentally different in number of ways. Describe them.
 - (c) Discuss, by order of importance, different criteria for model assessment and comparison.
4. Attempt any *two* parts of the following :— (10×2=20)
- (a) Describe the evolution of S/W Quality Assurance. Also discuss the different SQA issues.
 - (b) Explain the following with suitable examples :—
 - (i) Quality Improvement Processes
 - (ii) Statistical quality assurance.

- (c) Write short notes on the following :—
 - (i) SQA techniques.
 - (ii) Total quality management.
5. Write notes on any *two* of the following :— (10×2=20)
- (a) Software verification and validation.
 - (b) Proof of correctness.
 - (c) Modern S/W testing tools.