

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2011
Fourth Semester
Information Technology
IT 2251 — SOFTWARE ENGINEERING AND QUALITY ASSURANCE
(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions
PART A — (10 × 2 = 20 marks)

1. Define software engineering. What is the scope of software engineering?
2. Distinguish between software validation and software verification.
3. What are the functional and non-functional requirements? Give examples for each category.
4. What is the purpose of data flow diagram and entity relationship diagram?
5. What are the important characteristics of system requirements specification documents?
6. What is the difference between the notion of software architecture and design patterns?
7. Is cyclomatic complexity measure a good indicator of system design? Justify your answer.
8. What is regression testing? Why is it necessary to do regression testing?
9. What is the difference between black-box testing and white-box testing?
10. What is the need for software configuration management?

PART B — (5 × 16 = 80 marks)

11. (a) Bring out clearly the salient features of waterfall model and spiral model. What are the specific advantages and disadvantages of these two process models?

Or

(b) Explain the following :

(i) System Engineering

(ii) Product Engineering

12. (a) Discuss various steps in requirements engineering process? What are the different requirements elicitation techniques? Explain how clearly these elicitation techniques capture the clients requirements.

Or

(b) What is prototyping? Under what conditions you go for prototyping. Explain how the prototyping is used for requirements validation? What are the advantages and disadvantages of prototyping?

13. (a) Explain the concepts of coupling and cohesion. How are these concepts related to effective modular design?

Or

(b) (i) Discuss how structural partitioning can help to make software more maintainable.

(ii) What are the key design issues in the design of user interfaces?

Explain the importance of each issue.

14. (a) What is the specific purpose of Black-box testing? Explain clearly any two Black-box testing methods?

Or

(b) Write short notes on the following :

(i) Cyclomatic complexity

(ii) Loop testing

(iii) Basis path testing

(iv) Acceptance testing.

15. (a) Identify the important activities of software configuration management?
Explain the importance of each activity.

Or

(b) Explain the scope and importance of software metrics in software quality assessment.

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