

Total number of printed pages – 7 B. Tech  
BCSE 3402

Seventh Semester Examination – 2008

SOFTWARE ENGINEERING

Full Marks – 70

Time – 3 Hours

*Answer Question No. 1 which is compulsory  
and any five from the rest.*

*The figures in the right-hand margin  
indicate marks.*

1. Answer the following questions ; 2 × 10
- (a) Distinguish between a programme and a software product.

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- (b) What are the important activities that are carried out during the feasibility study phase of the classical waterfall model ?
- (c) Which are the two current metrics used for project size estimation ? Which one is better than the other and why ?
- (d) List the five desirable characteristics of a good Software Requirements Specification (SRS) document.
- (e) What is the meaning of the terms 'Coupling' in the context of software design ? What problems are likely to arise if two modules have high coupling ?
- (f) What do you understand by the terms 'UML' and 'Use Case' in the context of object oriented design of software ?

- (g) What are the differences between a Graphical User Interface (GUI) and a Text-Based User Interface ?
  - (h) What is the difference between coding standards and coding guidelines ? List at least two coding standards.
  - (i) What are the three levels of testing for any software product ?
  - (j) What is software reverse engineering ?
2. (a) Distinguish between control flow based design, data structure oriented design, data flow oriented design and object oriented design of software products. 5

- (b) Give a brief explanation with schematic diagram the prototyping model of software development. 5
3. (a) Give a brief comparison of the different life cycle models. Explain in brief the classical water fall model. 5
- (b) Which life cycle model you would follow for developing extremely large software that would provide, monitor and control cellular communication among its subscribers using a set of revolving satellites. Justify your answer. 5
4. (a) What is a SRS document ? Who are the typical users of the SRS document ? 5
- (b) Give a broad structure of a good SRS document. Specify some characteristics of

BCSE 3402

4

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a good SRS document and some characteristics of a bad SFRS document. 5

5. (a) Briefly highlight the difference between 'Code inspection' and 'Code Walk-through'. Compare the relative merits of Code inspection and code walk-through. What is the difference between verification and validation of a software product ? 5
- (b) Distinguish between Unit testing, Integration testing and System testing. Explain how unit testing is done with Driver and Stub modules. 5
6. (a) What is Black Box testing ? Explain the equivalence class partitioning and Boundary value analysis approaches with examples to designing of black box test cases. 5

BCSE 3402

5

P.T.O.

(b) Explain various strategies for White Box Testing. What do you understand by the statement "Strategy A is stronger testing strategy than strategy B" ? 5

7. (a) Write short notes on : 5

(i) SEI Capability Maturity Model (CMM)

(ii) ISO 9000 Certification.

(b) State Lehman's first and second law in connection with software evolution. Explain with a schematic diagram the process of 'software reverse engineering'. 5

8. (a) Specify different software maintenance process models and explain any one of the models with schematic diagram. How would you select an appropriate maintenance model for a maintenance project at hand ? 5

(b) What are the different COCOMO Models used for estimating cost and effort for a software project. Which model is better ? Explain in brief the Basic COCOMO Model.

5