D 42061 (Pages : 2) Name.....

Reg. No.....

FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION DECEMBER 2007

CH/PTCE 2K 501/PT EE 2K 402—SOFTWARE ENGINEERING

(Common to all branches + AR 2K 502 except BM 2 K 501)

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

I. (a) What is the aim of software engineering ? What does the discipline of software engineering ? Discuss.

(b) List the important issues which an SRS document must address.

(c) Explain the concept of abstraction in object-oriented software design.

(d) Represent the main components of a window management system in a schematic diagram and briefly explain their roles.

(e) Most software development organisations formulate their own coding standards that suit them most. Why ?

(f) Discuss the requirements of clean room software development.

(g) Distinguish between functional format and project format of software development organisation structure.

(h) "Software configuration management is crucial to the success of large software development projects". State reasons.

($8 \times 5 = 40$ marks)

II. (a) (i) What is meant by the life cycle phase of a software ? Why is it necessary for the software development team to identify a suitable life cycle model ?

(8 marks)

(ii) Explain the main phases in the spiral model of software development. (7 marks)

Or

(b) (i) Explain the terms, 'goal', 'maintainability', 'adaptability' and 'portability' with respect to an SRS document.

(8 marks)

(ii) Differentiate between structured analysis and structured design in the context of function-oriented design.

(7 marks)

III. (a) (i) Name the basic features that a programming language needs to support in order to be useful for object-oriented development.

(8 marks)

(ii) Discuss why several software packages support a command language-based interface in addition to a menu-based user interface.

(7 marks)

Or

Turn over

(b) (i) Explain why a design approach based on the information hiding principle is likely to lead to a reusable and maintainable design. Illustrate with a suitable example.

(8 marks)

(ii) Briefly discuss the architecture of the X window system. (7 marks)

IV. (a) (i) Explain how unit testing of a program is carried out with the help of driver and stub modules.

(8 marks)

(ii) Design a black box test that suits for a program that solves simultaneous equations of upto 100 variables.

(7 marks)

Or

(b) What is a module dependency graph ? Discuss the different approaches to integration testing.

(15 marks)

V. (a) (i) Mention any *four* important skills and traits of a good software engineer. (8 marks)

(ii) How does the capability maturity model classify software development industry?

(7 marks)

Or

(b) (i) What are the traits of a quality software product ? Explain the principal activities of a modern quality system.

(8 marks)

(ii) How will you measure the productivity of a software development team ? Explain.

(7 marks)

[4 × 15 = 60 marks]