Reg. No. : | | | | | | | | | | | |

T 3186

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2008.

Fourth Semester

Information Technology

CS 1353 — SOFTWARE ENGINEERING

(Regulation 2004)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. Explain the difference between validation and verification of an implementation.

2. State the benefits of waterfall life cycle model for software development.

3. What is the major distinction between user requirements and system requirements?

4. Which style of prototyping is most appropriate when the requirements are not well-understood?

5. Identify ambiguities or omissions in the functional requirements. What questions would you ask to clarify these functional requirements?

6. Why it is necessary to design the system architecture before the specifications are completed?

7. Explain the difference between black box testing and white box testing.

8. Calculate the cyclomatic complexity for the following program. Explain your approach.

```
int temp
if (a>b) temp a
else temp b
if (c>temp)
temp = c
return temp.
```

9. State the reason why defect tracking systems should not be used for employee performance evaluations.

10. What is the influence of coupling on maintenance?

PART B — ($5 \times 16 = 80$ marks)

11. (a) (i) What are the major differences between System Engineering and Software Engineering? State and explain the stages that distinguish the two. (8)

(ii) Explain with two examples of software development projects that would be amenable to evolutionary prototyping. Why is evolutionary prototyping suitable in these cases? (8)

Or

(b) What are the necessities of Life cycle model? Elaborate on the various issues of Software life cycle. (16)

12. (a) (i) Why is traceability an important aspect of requirements management? Why context system models are useful for requirements validation? (8)

(ii) What is requirement engineering? State its process and explain requirements elicitation problem. (8)

Or

(b) (i) Explain behavioral modeling. (6)

(ii) Briefly explain Data Flow Diagram and construct a Context diagram for the procedures followed in a restaurant in supplying food to the customer. (10)

13. (a) (i) Describe the concepts of cohesion and coupling. State the difference between cohesion and coupling with a suitable example. (8)

(ii) Using global variables typically leads to a poor design. Briefly discuss the use of global variables in the context of coupling and cohesion? (8)

Or

(b) (i) Explain SCM Terminology. How is SCM Organised? State its function. (9)

(ii) Define real-time executives and explain briefly why the call-return architectural control model is not usually suitable for real-time systems. (7)

14. (a) Why is it so important to include boundary values in your black-box test data? Illustrate with examples in which a test suite developed using black box techniques might give the impression that "everything is OK", while a test suite developed with white box testing techniques (for example, branch coverage) might uncover a fault and vice versa. (16)

Or

(b) Explain in detail the various testing strategies. (16)

15. (a) (i) Discuss on the various software cost estimation techniques. (8)

(ii) List out the frequently used metrics. Explain each of them. (8)

Or

(b) (i) What are upper and lower CASE tools? What is the purpose of upper-CASE tools? (6)

(ii) Explain in detail the COCOMO model. (10)