

6. What is cyclomatic complexity? Explain in detail how cyclomatic complexity can be computed.

7. Describe in detail Black box testing and white box testing. Illustrate the importance of testing boundary values with an example.

8. (a) Elaborate on the challenges involved in risk management.

(b) Explain the basic principles of software project scheduling.

9. (a) What are CASE tools? Explain the role of CASE tools in software development process.

(b) What do you mean by the term software reverse engineering? Why is it required? Explain the different activities undertaken during reverse engineering.

Code : 051614

B.Tech 6th Semester Examination, 2017

Software Engineering

Time : 3 hours

Full Marks : 70

Instructions :

(i) *There are Nine Questions in this Paper.*

(ii) *Attempt Five questions in all.*

(iii) *Question No. 1 is Compulsory.*

(iv) *The marks are indicated in the right-hand margin.*

All questions carry equal marks.

1. Answer any Seven

(a) *Evolutionary life cycle model is ideally suited for development of very small software products typically requiring a few month of development effort. Mark either True or False. Justify your answer.*

(b) An SRS document normally contains

(i) Functional requirements of the system

(ii) Module structure

(iii) Configuration management plan

(iv) Non-functional requirements of the system

(v) Constraints on the system

(c) A module is said to have logical cohesion, if

- (i) it performs a set of tasks that relate to each other very loosely.
- (ii) all the functions of the module are executed within the same time span.
- (iii) all elements of the module perform similar operations, e.g. error handling, data input, data output etc.
- (iv) None of the above
- (d) What is the importance of constructing DFDs in the context of a good software design.
- (e) Which diagrams in UML capture the behavioural view of the system?
- (f) Differentiate between structured analysis and structured design.
- (g) Consider the basic COCOMO model where E is the effort applied in person-months, D is the development time in chronological months, $KLOC$ is the estimated number of delivered lines of code (in thousands) and a_b, b_b, c_b, d_b have their usual meanings. The basic COCOMO equations are of the form.
- $E = a_b(KLOC) \exp(bb), D = C_b(E) \exp(d_b)$
 - $D = a_b(KLOC) \exp(bb), E = c_b(D) \exp(d_b)$
 - $E = a_b \exp(b_b), D = c_b(KLOC) \exp(d_b)$
 - $E = a_b \exp(d_b), D = c_b(KLOC) \exp(b_b)$

- (h) What is the primary purpose of risk management?
- (i) Cohesiveness of the data and methods within a class is a sign of good OOD. Mark either True or False. Justify your answer.
- (j) One of major criteria for obtaining ISO 9001 certification for a software development organization is to possess well-documented software production process. Mark either True or False. Justify your answer.
- Discuss in detail the different phases of a classical waterfall model. What is the advantage of using prototype software development model instead of waterfall model?
 - (a) What are the components of the standard structure for software requirements document? Explain in detail.
(b) Distinguish between functional and non-functional requirements. Explain non-functional requirement types with the help of a block diagram.
 - (a) Explain COCOMO model for estimation.
(b) Briefly describe the activities of software configuration management.
 - What is meant by ISO 9000 certification? Discuss about the shortcomings of ISO 9000 certification process? What are the salient features of ISO 9001 certification? Why is it important for a software development organization to obtain ISO 9001 certification.