

Time: 3 Hours

JUNE 2015

Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE:

- Question 1 is compulsory and carries 28 marks. Answer any FOUR questions from the rest. Marks are indicated against each question.
- Parts of a question should be answered at the same place.

- Q.1**
- a. What is the role of software engineering?
 - b. Differentiate between reviews, walkthroughs and inspections.
 - c. List any four software design concepts that span both traditional and object-oriented software development.
 - d. What is structured programming?
 - e. What is regression testing? Why is regression testing considered a problem for testers?
 - f. What is software configuration management?
 - g. Explain the COCOMO model in brief. (7×4)
- Q.2**
- a. Why is software engineering considered a “layered” technology? Explain, with the help of a suitable diagram, the various layers of software engineering. (4)
 - b. What is requirement elicitation? Explain, in brief, the various methods of requirement elicitation. (6)
 - c. Explain the “waterfall” model in detail. In what kind of projects this model is applicable? (8)
- Q.3**
- a. What is a data dictionary? Explain its purpose. (4)
 - b. Explain different symbols used for DFD. (4)
 - c. The student result management system of an institute needs to be automated. Draw a context diagram for this system. (10)

- Q.4** a. What is a structured chart? What are the various notations used in a structured chart?(5)
- b. What is an interaction diagram in UML? Explain its all notations. What is its role in object oriented design? (6)
- c. What is module cohesion? Identify & briefly explain various levels of module cohesion. (7)
- Q.5** a. Explain any two concepts of object oriented programming. (4)
- b. What is basis path testing when is it used? Define an independent path. (4)
- c. A program takes an angle as input within range [0,360] and determines in which quadrant the angle lies. Design all test cases for this problem using equivalence class partitioning method. (10)
- Q.6** a. What is the need of coding standards in an organization? List any four commonly used conventions for naming followed in Java Programming. (6)
- b. Explain Boehm's model for software maintenance. (6)
- c. Explain the change control process as a part of software configuration management.(6)
- Q.7** a. Consider a project with following parameters: EI = 50, EO = 40, EQ = 35, ILF = 06, ELF = 04. Assume all weighing factors are average. In addition system requires, critical performance, average end user efficiency, moderate distributed data processing, and critical data communication. Other GSCs are incidental. Compute the function points using FPA. (8)
- b. How do PERT and CPM helps in project scheduling? (4)
- c. There are 100 errors estimated to be present in a program. However, 80 errors have been experienced. Use Jelinski-Moranda model to calculate failure intensity with a given $\emptyset = 0.03$. What will be the failure intensity after the experience of 80 errors? (6)