

ALCCS

Time: 3 Hours

DECEMBER 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.

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- Q.1**
- Explain waterfall model in brief.
 - Describe the characteristics of good quality Software.
 - Explain the state machine diagram with an example.
 - List and explain any three commonly occurring coding errors.
 - Differentiate between Integration and Unit testing.
 - List and briefly explain types of software maintenance techniques.
 - Briefly explain the two types of project scheduling methods. (7×4)
- Q.2**
- What is the advantage of using prototype software development model instead of iterative model? Also explain the effect of defining a prototype on the overall cost of the software project. (4)
 - Explain the steps involved in the prototyping. (6)
 - What are functional and non-functional requirements? (4)
 - How does the risk factor affect the spiral model of software development? (4)
- Q.3**
- What is the difference between SRS document and design document? What are the contents of SRS document and design document? (4)
 - Define software reliability. What is the difference between hardware & software reliability? (4)
 - Explain COCOMO model in brief. (8)
 - What is software availability? (2)

Q.4 a. How is software design different from coding? Explain. (6)

b. Why maintenance of software is important? Discuss some of the problems that are faced during maintenance of software. (6)

c. Explain the reuse maintenance model with the help of a diagram. (6)

Q.5 a. Explain reverse engineering. (4)

b. Explain the software life cycle model that incorporates risk factor. (6)

c. Explain the concept of bottom-up, top-down and hybrid design. (8)

Q.6 a. What do you understand by the terms coding standards and guidelines? List some coding standards and guidelines that are commonly adopted by many software development organizations. (8)

b. What is Cyclomatic Complexity? Write properties of Cyclomatic complexity. Draw the Flow graph for the program given below and find the Cyclomatic Complexity. (10)

```

i = 0;
n=4; //n -Number of nodes present in the graph, A is an array

while (i<n-1) do
    j = i + 1;
    while (j<n) do
        if A[i]<A[j] then
            swap(A[i], A[j]);
        end do;
    i=i+1;
end do;

```

Q.7 a. Explain various Object Oriented concepts used in Software Engineering. Give an example. (5)

b. What is user acceptance testing? Explain types of user acceptance testing. Why is it necessary? (5)

c. Explain the following Software Metrics (4×2)
 (i) Lines of Code
 (ii) Function Point