

ALCCS

Time: 3 Hours

December - 2017

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. Differentiate between functional and non-functional requirements.
 - b. Briefly explain the two types of project scheduling methods.
 - c. What is the role of software engineering?
 - d. Differentiate between failures and faults.
 - e. Explain the concept of modularity in the context of software design. What are the benefits of modularity?
 - f. Explain the use of Case diagram. Why is it important?
 - g. Explain CPM project scheduling strategy. Give its advantages and disadvantages. (4×7)
- Q.2**
- a. 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. (9)
 - b. State Boehm spiral model. What are the advantages and disadvantages of spiral model? (9)
- Q.3**
- a. What is a data dictionary? Explain its purpose. (4)
 - b. Explain different symbols used for DFD. (4)
 - c. What are the different criterion that enables us to evaluate a design method? (4)
 - d. Briefly explain Bottom-up and Top-down software design strategy. (6)
- Q.4**
- a. What is integration testing? Explain in detail about the Top-Down Integration Testing. (9)

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- b. Draw flow graph for the given problem whose program is shown below. Find its cyclomatic complexity and identify all the independent paths which exists in the program given below: (9)

```

void Binary (boolean found)
{
    int top, bott, mid, x;
    int A[20];
    boolean found = false;
    bott = 0;
    top = size-1;
    mid = (top+bott)/2;
    if (A[mid] == x)
        found = true;
    else
        found = false;
    while (bott <= top ++! found)
    {
        mid = (top+bott)/2;
        if (A[mid] = x)
            found = true;
        else if (A[mid] < x)
            bott = mid+1;
        else
            top = mid-1;
    }
    return found;
}
    
```

Q.5 a. What are the basic principles that guide software project scheduling? (9)

- b. Define the terms used in structural testing and give an example for illustration of: (3×3)
- (i) Cyclomatic complexity
 - (ii) Deriving Test cases
 - (iii) Graph matrices

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. Differentiate between function oriented design and object oriented design. (5)

- c. Consider a program which computes the square root of an input integer between 0 and 5000. Determine the equivalence class test cases. Also determine the test cases using boundary value analysis. (5)

Q.7 a. Briefly discuss the following project estimation techniques: (6+4)

- (i) Expert Judgment and Problems with Expert Judgment
- (ii) Delphi-Cost

b. Write short notes on the following:- (4×2)

- (i) Coding standards and guidelines
- (ii) PERT