

**SVKM's NMIMS**  
**MUKESH PATEL SCHOOL OF TECHNOLOGY MANAGEMENT & ENGINEERING**

Programme: B. Tech (COMPUTER)

Year: III

Semester: V

**Academic Year: 2017-2018**

Subject: Software Engineering

Date: 27 November 2017

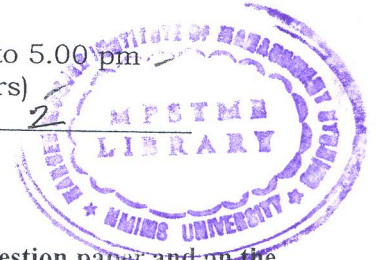
Marks: 70

Time: 2.00 pm to 5.00 pm

Durations: 3 (hrs)

No. of Pages: 2

**Final-Examination**



**Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover of the Answer Book, which is provided for their use.**

- NB :
- 1) Question No. 1 is compulsory.
  - 2) Out of remaining questions, attempt any 4 questions.
  - 3) In all 5 questions to be attempted.
  - 4) All questions carry equal marks.
  - 5) Answer to each new question to be started on a fresh page.
  - 6) Figures in brackets on the right hand side indicate full marks.
  - 7) Assume suitable data if necessary.

Q.1

- a) What do you mean by requirements? Explain Functional and Non-functional requirements with suitable examples. [7]

- b) What is the use of Cyclomatic Complexity Metric in software engineering. [7]  
Determine the Cyclomatic complexity value for the given `simplesubtract()` method using all the methods.

```
public int simplesubtract (int x, int y) {  
    int z=0;  
    print ("value of x is " + x);  
    print ("value of y is " + y);  
    if (x > y) {  
        z = x - y;  
    }  
    else {  
        z = y - x;  
    }  
    return ("value of z is" + z);  
}
```

Q.2

- a) What is a metric? List and explain the different project and process metrics. [6]
- b) A program specification accepts a 4-digit integer input value, greater than and equal to 2000 and less than or equal to 8000. Determine the test cases using: [8]
- a. Equivalence Class Partitioning
  - b. Boundary Value Analysis

Q.3

- a) List and explain the golden rules for user interface design. [4]
- b) What is requirement gathering? Explain various requirement engineering tasks. [5]
- c) Discuss the process framework and umbrella activities. [5]

Q.4

- a) Which process model is best suited for risk management? Discuss the model in detail with suitable example. List the advantages and disadvantages of the model. [8]

- b) Consider 7 functions with their estimated lines of codes given below [6]

Function LOC

Func 1 2340

Func 2 5380

Func 3 6800

Func 4 3350

Func 5 4950

Func 6 2140

Func 7 8400

Based on historical data, the average productivity is 620 LOC/pm and average labour rate is Rs. 8000 per month. Find the total estimated project cost and effort.

Q.5

- a) Explain Scrum model with its key features and neat labeled diagram. [7]

- b) Discuss with the help of suitable example COCOMO II model for software estimation. [7]

Q.6 Write short notes on (ANY TWO): [14]

- SQA Activities
- Fundamental software design concepts.
- Software configuration items
- Black-box testing techniques

Q.7

- a) What is the purpose of Data Flow Diagrams? Mention the notations used for the same. [8]  
Construct a DFD (Level -0 and Level-1) for a library management system.

- b) What is the importance of Architecture in software engineering? List and describe the different types of architectural styles. [6]

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