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]

a. SQA Activities
b. Fundamental software design concepts.
c. Software configuration items
d. Black-box testing techniques

Q.7

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

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

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