Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

V SEMESTER B.TECH. (COMPUTER SCIENCE AND ENGINEERING)

END SEMESTER EXAMINATIONS Makeup, NOV/DEC 2016

SUBJECT: SOFTWARE ENGINEERING [CSE 3104]

REVISED CREDIT SYSTEM
(31/12/2016)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitably assumed.

1A. How do you differentiate a simple program from a software product? **3M**

1B. Explain exploratory program development style. What is wrong with the exploratory style of software development? **3M**

1C. Compare Rapid Application Development (RAD) with prototyping, iterative waterfall and evolutionary software development life cycle models. **4M**

2A. What could be the possible reasons for software project management complexities? **3M**

2B. Briefly explain the two Empirical Estimation techniques. **4M**

2C. Differentiate between verification and validation. **3M**

3A. A University has the following rules for a student to qualify for a degree with Physics as the main subject and Mathematics as the subsidiary. **4M**

i) Marks should be 50% or more in Physics and 40% or more in Mathematics
ii) If marks in Physics is less than 50% then marks in Mathematics must be 50% or more. However, Physics marks must be at least 40%
iii) If marks in Mathematics are less than 40% but those in Physics are 60% or more then only examination in Mathematics has to be repeated.
iv) In all other cases the student fails.

Express the above statements with a decision table.

3B. Describe the characteristics of a good SRS document. **4M**

3C. Axiomatically specify the pre- and post-conditions of a function that takes a real number as argument and returns half the input value if the input less than or equal to 100, or else returns double the value. **2M**

4A. What is coupling? Classify different types of coupling that can exist between two modules. **3M**

4B. Illustrate the process of developing the DFD model of a system. **4M**

4C. An extension ladder has a rope, pulley, and latch for raising, lowering, and locking the extension. When the latch is locked, the extension is mechanically supported and you may safely climb the ladder. To release the latch, you raise the extension slightly with the rope. You may then freely raise or lower the extension. The latch produces clapping sound as it passes over the steps of the ladder. The latch may be reengaged while raising the extension by reversing the direction just as the latch is passing a step. Prepare a state diagram of an extension ladder. **3M**

5A. What is the significance of McCabe's Cyclometric complexity? **4M**
Compute McCabe's Cyclometric complexity for the following code:

```
int main (int argc, char* argv[ ])
 {
        for (int i= 0; i< 10; ++i)
            std::cout  << i << std::endl;
        for (int j = 9; j >= 0; --j)
            std::cout<<  j << std::endl;
 }
```

5B. Construct a use case model for the **Windows Explorer** with at least one actor and minimum five use cases. Give use case description for any one use case in the proper format. **4M**

5C. How do you categorize user interfaces? Explain those categories. **2M**