3A. Create an activity diagram based on the following narrative. The purchasing department handles purchase requests from other departments in the company. People in the company who initiate the original purchase request are the "customers" of the purchasing department. A case worker within the purchasing department receives that request and monitors it until it is ordered and received. Case workers process the requests for purchasing products under Rs. 1,500, write a purchase order, and then send it to the approved vendor. Purchase requests over Rs. 1,500 must first be sent out for a bid from the vendor that supplies the product. When the bids return, the case worker selects one bid. Then, the case worker writes a purchase order and sends it to the approved vendor. **5**

3B. Identify the critical path for the task network of a software project given in the table Q.4B using CPM scheduling method.

Task name	Duration(days)	Dependencies
T1	24	-
T2	24	-
T3	13	T1
T4	14	T1,T2
T5	17	T2
T6	12	T5
T7	11	T3,T4,T5
T8	12	T3,T4,T6
T9	13	T3,T4,T6
T10	13	T5,T6
T11	14	T7,T8,T9
T12	5	T10,T11

Table Q.4B. Task Breakdown of the software project **3**

3C. Mention the difference between the following concepts with respect to class diagram. **2**
i. extends and includes in UML diagrams ii. Generalization and Association

4A. Explain the layered software architectural style and data-centered architectural style. **5**

4B. Explain the various levels of software testing with its objective and scope. **3**

4C. Which life cycle model would you follow for developing each of the following software application? Justify. **2**
i] A compiler for a new language ii] A well understood large database management system

5A. With a neat sketch highlight the features of an evolutionary process model and also, explain its advantage and disadvantages. **5**

5B. Draw the state diagram for the CopyMachine described. Initially the copy machine is off. When power is turned on, the machine reverts to a default state of one copy. While the machine is warming, it flashes the ready light. When the machine completes internal testing, the ready light stops flashing and remains on. Then the machine is ready for copying. The operator may change any of the parameters when the machine is ready. The operator may increment or decrement the number of copies, change the size, toggle 2between automatic and manual contrast, and change the contrast when auto contrast is disabled. When the parameters are properly set, the operator pushes the start button to begin making copies. Ordinarily, copying proceeds until all copies are made. Occasionally the machine may jam or run out of paper. **3**

5C. List the types of software risks with suitable examples. **2**

Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

I SEMESTER M.TECH. (COMPUTER NETWORKING AND ENGINEERING)

MAKEUP EXAMINATIONS, DEC 2016

SUBJECT: SOFTWARE ENGINEERING [ICT 5102]

REVISED CREDIT SYSTEM
(29 /12/2016)

Time: 3 Hours **MAX. MARKS: 50**

Instructions to Candidates:

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

1A. Consider the Student Auditorium Management Software (SAMS) system described below.
Various types of social and cultural events are conducted in the student's auditorium. There are two categories of seats: Balcony seats and Ordinary seats. Normally, the Balcony seats are more expensive in any show. The show manager fixes the price of these two categories of seats. The show manger also determines the number of Balcony and Ordinary seats that can be put on sale, since for each show some seats are offered as complimentary gifts to VIPs. The show manager also enters the show dates, the number of shows on any particular dates and the show timings. The spectators book their seats in advance by paying the full ticket price using SAMS. The spectator indicates the type of the seat, and the computer should therefore, printout the ticket clearly showing the seat numbers. The spectators can cancel their booking before 3 days of the show. In this case, the ticket price is refunded after deducting Rs 5/- as the booking charge. If a ticket is returned later, but before one day of a show, a booking charge of Rs 10/- is deducted, for ordinary tickets and Rs 15/- for balcony tickets. On the last day of the show, the deduction is 50% of the ticket price. The system should let the spectators to query the availability of different classes of seats. The show manager can query any time the percentage of seats booked for various classes of seats and the amount collected in each case.
i] Draw the use case diagram for the above problem statement.
ii] Write the use case specification for any two use cases of the use case diagram drawn in Q.1A(i). **5**

1B. Explain the importance of SEI-CMM. Also, describe key process areas (KPA's) of CMM. **3**

1C. What is change management ? Why is it important ? **2**

2A. Identify the classes for the problem statement given in Q.1A and draw the detailed class diagram for the same. **5**

2B. Explain the following with suitable example/s. **3**
i. Role name in a class diagram ii. Relationships in a class diagram.

2C. State when a module can be called functionally independent of other modules. Why functional independence is the key factor for a good software design? **2**