Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
A Constituent Institution of Manipal University

II SEMESTER M.TECH. (COMPUTER SCIENCE AND ENGINEERING)

END SEMESTER EXAMINATIONS, APRIL/MAY 2017

SUBJECT: OBJECT ORIENTED SYSTEM DESIGN [CSE 5202]

REVISED CREDIT SYSTEM

Time: 3 Hours 22-04-2017 MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** questions.
- Missing data may be suitable assumed.

Problem statement: Retail Store Management Software

The Retail Store Management System is a system designed for managing i.e. ordering, arranging and selling goods. The Retailer checks for the availability of goods in the store. If the stock of goods is less then retailer places order for goods. While ordering the goods, store will receive the goods area, the retailer then arrange them by product or by price, then retailer makes payment. If the stock of goods is available then he will arrange goods for selling. The retailer then sells the goods directly to the customer. The customer buys the items from retailer. The retailer prepares bill for goods purchased by the customer, he receives amount by credit or by cash from customer. The supplier supplies the goods to the store in the system. The overall system is used to manage the goods in the store.

1A. For the above given problem statement, draw a detailed use case diagram. **5M**

1B. For the above given problem statement, draw an activity diagram for the entire system and list the steps to create activity diagram in UML. **5M**

2A. Identify the classes using noun phrase approach for the given problem statement and give the CRC card for each of the identified classes. **5M**

2B. Give the detailed class diagram showing the relationships and multiplicity for the given problem statement. **5M**

3A. Given the following description of a shipment by Union Parcel Shipments, first identify all of the states and exit transitions, and then develop a state machine diagram. A shipment is first recognized after it has been picked up from a customer. After it is in the system, it is considered to be active and in transit. Every time is goes through a checkpoint, such as arrival at an intermediate destination, it is scanned, and a record is created indicating the time and place of the checkpoint scan. The status changes when it is placed on the delivery truck. It is still active, but not it is also considered to have a status of delivery pending. Of course, after it is delivered, the status changes again. From time to time, a shipment has a destination that is outside the area served by Union. In those cases, Union has working relationships with other courier services. After a package is handed off to another courier, it is noted as being handed over. In **4M**

those instances, a tracking number for the new courier is recorded (if it is provided). Union also asks the new courier to provide a status change notice after the package has been delivered. Unfortunately, from time to time a package gets lost. In that case, it remains in an active state for two weeks but is also marked as misplaced. If after two weeks the package has not been found, it is considered lost. At that point, the customer can initiate lost procedures to recover any damages.

3B. For the given data – **3M**

Measurement parameter	Weighting factor		
	Simple	Average	Complex
Number of user input	5	10	15
Number of user output	7	13	17
Number of user inquiries	5	10	15
Number of user files	5	6	8
Number of user interfaces	3	4	5

Determine the unadjusted function point (UFP) metric for simple, average and complex weighting factor. If the total degree of influence for the product is 49, determine the function point metric of the project.

3C What are the required skills of the system analyst? **3M**

4A. Describe the different metaphors of human computer interaction. **4M**

4B. For the implementation core processes, which test types are considered and explain its tested defects and operational characteristics. **3M**

4C. Explain why the spiral life cycle model is considered to be a meta model. Also explain how a software development effort is initiated and finally terminated in the spiral model. **3M**

5A. Explain the responsibilities of each classes in three layer design. Explain singleton design pattern. **4M**

5B. List and explain different distributed database architectures. **4M**

5C With a neat diagram, explain briefly the phases of Unified Process model for software product development. **2M**