END TERM EXAMINATION

FIFTH SEMESTER [MCA] DECEMBER-2009

Paper Code: MCA301	**Subject: Object Oriented Software**
Engineering	
Paper Id-44301	

Time : 3 Hours   **Maximum Marks : 60**

Note: Attempt all questions as per the internal choice given in each.

Q1. Attempt all the questions   (5*4=20)

(a) Differentiate between analysis objects with examples.

(b) Explain why object-oriented programs are said to be more maintainable and reusable as compare to function-oriented programs?

(c) Which requirement elicitation is most popular? Explain.

(d) What is a history state? How it helps in the development of a activity diagram?

(e) List UML diagrams and explain any two in detail.

Q2 (a) Compare and contrast waterfall, spiral and fountain model. List their advantages and disadvantages.   (5)

(b) Compare and contrast various requirement elicitation methods.   (5)

OR

(a) Discuss the object-oriented system design life cycle.   (5)

(b) Discuss the role of use-cases in object oriented requirement analysis?   (5)

Q3 (a) What is the purpose of Extension and Inclusion association between Use Cases? Explain with the help of an example.   (5)

(b) What is the difference between Use-Case Model and Domain-Object model?   (5)

OR

(a) Differentiate between: (5)
   a. Activity and state transition diagram
   b. Sequence diagram and collaboration diagram

(b) Consider air ticket reservation system. Identify entity, control and interface objects. (5)

Q4 (a) Define the following: (6)

i) Block
ii) Design model
iii) Association, Generalization and Aggregation

(b)What are the reasons for having construction phase in object oriented software engineering?   (2)

(c) What are the guidelines for defining stimuli in an interaction diagram?   (2)

OR

(a) Explain the procedure of converting analysis model into construction model.   (5)

(b) How is object oriented integration testing different from structural integration testing? Compare and contrast various object oriented integration testing techniques.   (5)

Q5 Consider the following Transport Company Automation (TCA) software. A transport company requires to automate its various operations. The company has a fleet of vehicles. Currently the company has the following vehicles:

Ambassadors: 10 Non-AC, 2 AC

Tata Sumo: 5 Non-AC, 5 AC

Maruti Omni: 10 Non-AC

Maurti Esteem: 10AC

Mahindra Armada: 10 Non-AC

The company rents out vehicles to customers. When a customer requests for a car, the company lets them know what types of vehicles are available and the charges for each car. For every car, there is a per hour charge and a per kilometer charge. A car can be rented for a minimum of 4 hours. The amount chargeable to a customer is the maximum of (per hour charge for the car times the number of hours used, and per kilometer charge times the number of kilometers run) subject to minimum amount decided by the charge for 4 hours use of the car. An AC vehicle of a particular category is charged 50% more than a non-AC vehicle of the same category. There is a charge of Rs 150 for every night halt regardless of the type of the vehicle.

When a customer books a car, h has to deposit an advance amount. The customer also informs the company when he expects to return the car. When the car is returned, depending on the usage, either the customer is refunded some amount, or he has to pay additional amount to cover the cost incurred.

In addition to automating the above activities, the company wants to collect statistics about various types of vehicles such as average amount of money spent on repairs for the car, average demand, revenue earned by renting out the car, and the fuel consumption of the car. Based on these statistics, the company may take a decision about which vehicles are more profitable. The statistics can also be used to decide the charge for different types of vehicles. Draw the following using standard notations. If necessary, you can make suitable assumption regarding the details of various features of TCA software, but you must clearly write down the assumption you make.

      a.   Draw the context diagram (level 0 DFD) for the TCA software. (3)

      b.   Draw the level 1 DFD for the TCA software.   (4)

      c.   Draw the case diagram for the TCA software   (3)

<div align="center">OR</div>

(a) What is the guard condition? Explain its significance with the help of an example. (3)

(b) Differentiate between component and deployment diagram.   (2)

(c) Explain various substates in activity diagram with the help of examples.   (3)

(d) Draw state transition diagram foe inserting and removing items in a queue.   (2)