No. of Printed Pages : 3

MCS-032

09309

MCA (Revised)

Term-End Examination

June, 2014

MCS-032 : OBJECT ORIENTED ANALYSIS AND DESIGN

Time : 3 Hours *Maximum Marks : 100*

Note : *Question no. 1 is **compulsory**. Attempt **any three** questions from the rest.*

1. (a) A general store wants to automate its inventory . It has points of sales terminals that can record all of the items and the respective quantities, that a customer purchased. It has another terminal in the loading dock to handle arriving shipments from suppliers. It has one more terminal to enter losses due to spoilage.

   Referring to above scenario, perform following tasks :

   (i) Find out list of objects 5

   (ii) Draw Class diagram 5

   (iii) Draw Object diagram 5

   (iv) Draw Usecase diagram 5

   (**Note** : Make assumptions, wherever necessary)

   (b) Explain basic implementation strategy for a state chart giving an example. 5

(c) Give two disadvantages of both, structured analysis and object oriented analysis approach. 5

(d) Explain the steps the designer should take to adjust inheritance , in an object oriented design with an example. 5

(e) What are associations ? How can we implement them in C++/Java? Explain with suitable example /code. 5

2. (a) Prepare an event trace diagram for withdrawing, checking balance and transferring money in the bank using ATM card. 10

(b) What is object oriented modelling ? Why it is scalable ? Explain the role of message passing in object oriented system. 10

3. (a) Prepare a Data Flow Diagram (DFD) for computing the volume and surface area of a cylinder. Inputs are height and radius of the cylinder. Outputs are volume and surface area. Discuss the different ways to implement the DFD. 10

(b) What do you mean by good software design ? How you will identify that the object oriented design of a software is good or bad ? How does software design influence the implementation part ? Give suitable example in support of your answer. 10

4. (a) What is the need of design optimization in object oriented system ? Explain the various ways through which object oriented system be made efficient. 8

(b) Prepare an instance diagram for the expression $\left(X + \frac{Y}{2}\right)\left(\frac{X}{3} + Y\right)$. Paranthesis are used in the expression for grouping but are not needed in the diagram. 8

(c) What do you mean by object ID ? What are its advantages ? 4

5. (a) What is concurrency ? Explain the issues involved in identifying the concurrency in a system with an example. 7

(b) Explain the steps involved in implementing persistence in object oriented system. 7

(c) Briefly describe the following : 6

(i) Different models in UML
(ii) Association and its types
(iii) Multiplicity and its types