MCS-032

MCA (Revised)

Term-End Examination

08482   June, 2015

MCS-032 : OBJECT ORIENTED ANALYSIS AND DESIGN

Time : 3 hours   *Maximum Marks : 100*

Note : *Question number 1 is **compulsory**. Attempt any*
***three** questions from the rest.*

1. (a)   Explain the ternary association with the
          help of an example.   5

    (b)   Explain the Object Oriented System
          development approach in brief.   5

    (c)   A simple digital watch has a display and
          two buttons : A Button and B Button. The
          watch has two modes of operation, display
          time and set time. In the display time
          mode, hours and minutes are displayed,
          separated by a flashing colon. The set time
          mode has two sub-modes, set hours and set
          minutes. The A button is used to select
          modes. Each time it is pressed, the mode
          advances in the sequence : display, set

MCS-032   1   P.T.O.

hours, set minutes, display, etc. Within the sub-modes, the Button B is used to advance the hours or minutes once each time it is pressed. Buttons must be released before they can generate another event.

(i) Draw a class diagram. 5

(ii) Draw a state diagram. 5

(iii) Draw a use case diagram. 5

(iv) Draw a sequence diagram. 4

(v) Identify the states and transitions. 6

(d) Draw a component diagram for the library system. 5

2. Differentiate between the following : 5×4=20

(i) Actors and Stakeholders

(ii) Multiple Inheritance and Multilevel Inheritance

(iii) Structured Analysis and Object Oriented Analysis

(iv) Encapsulation and Information Hiding

(v) Aggregation and Generalization

3. (a) Define the following terms, giving at least one example of each : $4 \times 2\frac{1}{2} = 10$

(i) Polymorphism

(ii) Object Oriented Database

(iii) Code Reusability

(iv) Date Abstraction

(b) Enumerate the properties of a well structured use case, with the help of an example. *5*

(c) The cellular network must place the phone call correctly, and also schedule the receiving calls and conference calls. Draw a class diagram for cellular network. *5*

4. (a) Explain how activity diagrams are designed in an object oriented approach. Also draw an activity diagram for E-mail encryption. *14*

(b) Explain concurrency with synchronization, in dynamic modeling, using a suitable example. *6*

5. (a) What is the UML notation for the following. Explain briefly. *5*

(i) Interface

(ii) Aggregation

(b) What is the advantage of two-way association over one-way association ? Explain with the help of an example. *5*

(c) What do you understand by the term Association ? Justify that the "Aggregation relation is a special form of Association relationship". *10*