MCS-032

MCA (Revised)

Term-End Examination

December, 2018

06203

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) Identify class, objects, instance, generalization, association and inheritance : *5*

    (i) University — School of Studies

    (ii) School of Studies — School of Computer and Information Science

    (iii) Teacher — Student

    (iv) Computer

    (v) Student — M.Tech. Student

    (b) Draw a state diagram for cancellation of a railway ticket. *5*

(c) In XYZ Bank, the employees working in the bank are categorized as managers and associates. The main services provided by the bank are home loan, personal loan, account opening and closing, deposit, withdrawal of money and issuing and renewal of debit cards. The bank wants to computerize the entire operation. Draw the following diagrams in order to computerize the system :

  (i) Use-case diagram   *4*

  (ii) Class diagram   *6*

  (iii) Object diagram   *6*

  (iv) Sequence diagram   *4*

(d) What is serialization ? Where is it used and why ?   *6*

(e) Differentiate between a Sequence diagram and a Collaboration diagram.   *4*

2. (a) Explain the following terms with appropriate example :   *6*

  (i) Weak typing

  (ii) Persistency

(b)   What is concurrency ? How is it identified ? What are the issues, mechanisms and methods to manage concurrency ?   *9*

(c)   What is a component diagram ? Show the UML notations for components and relationship between components.   *5*

3. (a)   What is an activity diagram ? Draw an activity diagram for online purchasing of a smart phone.   *6*

(b)   What is the difference between 1-way and 2-way association ? Explain an approach to implement 2-way association.   *9*

(c)   Draw a generalization hierarchy of automobile class.   *5*

4. (a)   Draw an object model to give a broader view of a University system, which offers online courses.   *8*

(b)   How do you map object classes in the form of tables ? Illustrate through an example.   *8*

(c)   What is the use of object IDs ? Explain.   *4*

5. (a) Draw a use-case diagram for a typical flight cancellation system. Identify actors. *5*

    (b) How are constraints defined and implemented ? *5*

    (c) What is functional modelling ? What are the advantages of functional modelling ? Draw a functional model using DFD for withdrawing amount from a bank account. *10*