17630

15116

3 Hours / 100 Marks   Seat No.

Instructions – (1) All Questions are *Compulsory*.

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

(5) Preferably solve questions in order.

Marks

1. a) **Attempt any THREE of the following:** 12

   (i) Describe any two features of OO (Object Oriented).

   (ii) State any four principles of modelling.

   (iii) Differentiate between Aggregation and Association.

   (iv) Define following terms with notations:

   1) Object

   2) Class

   4) Qualified association

   5) Ordered association

Marks

  b) **Attempt any <u>ONE</u> of the following:**   **6**

     (i)   Draw neat class diagram for Railway Reservation System

        { consider : Railway_details, Passenger_details, booking, Admin, route, etc }

     (ii)   State any two types of actors used in use case diagram. Draw a neat use case diagram for car rental system

        { consider car_details, car_agency, passenger, Bill_payment }

2.   **Attempt any <u>TWO</u> of the following:**   **16**

  a) Explain following types of relationships with notation:

     (i)   Realization

     (ii)   Generalization

     (iii) Dependency

     (iv) Association

  b) State and explain notations used to draw class diagram. Draw a neat class diagram for ATM - money withdrawal.

  c) State and explain notations used to draw sequence diagram. Draw a neat diagram for library management system - Book Issue.

3.   **Attempt any <u>FOUR</u> of the following:**   **16**

  a) List three models and explain functional model in detail.

  b) Describe propagation of operation with diagram and example.

  c) Describe Join and Fork operations in activity diagram with example.

  d) Draw and state notations for the state chart diagram.

  e) Explain the swim lane activity diagram with one example.

Marks

4. a) **Attempt any THREE of the following:** **12**

    (i)   Explain how UML diagrams are classified.

    (ii)   Describe association classes and inheritance with neat diagrams.

    (iii) Draw activity diagram to purchase books from supplier in library.

    (iv) What is importance of nested activity diagram?

    b) **Attempt any ONE of the following:** **6**

    (i)   Explain multiplicity with all its notations.

    (ii)   Explain structure control in sequence diagram for conditional and loop execution.

5. **Attempt any TWO of the following:** **16**

    a)   Explain importance of Synchronous and Asynchronous messages in sequence diagram. Draw sequence diagram for student admission in your institute.

    b)   Explain decision making and branching in activity diagram. Draw activity diagram for book return in library management system.

    c)   What is component? Is component replaceable? Explain why. Draw all notations necessary to draw component diagram.

Marks

6. **Attempt any FOUR of the following:** **16**

    a) Describe ≪ include ≫ and ≪ extend ≫ relationships in use case diagram.

    b) Describe what is use case generalization in detail with example.

    c) Draw and state notations used to draw activity diagram.

    d) Draw an activity diagram to print receipt of one transaction in ATM.

    e) Define node. Draw notation. Explain use of deployment diagram.

————