**16172**

**3 Hours / 100 Marks**  Seat No. 

**Instructions :**  (1)  All Questions are *compulsory.*

(2)  Answer each next main Question on a new page.

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

(4)  Figures to the right indicate full marks.

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

**Marks**

1.  **Attempt any FIVE of the following :**  **20**

(a)  Explain Object Modelling Technique (OMT) by Rambaugh.

(b)  Explain : (i)  Attributes  (ii)  Link attributes with reference to class and object.

(c)  Explain << include >> and << extend >> relationships in use case diagram.

(d)  Differentiate between aggregation and association.

(e)  Explain branching in activity diagram.

(f)  Define node. Draw any two notations, state two uses of deployment diagram.

(g)  Explain with diagram create and destroy messages.

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

    (a) Give any four principles of modelling.

    (b) Draw and explain notations used for object diagram.

    (c) Draw usecase diagram for railway reservation system.

    (d) Define constraints. How they are applied ? Give example.

    (e) Explain substate with example.

    (f) Describe conceptual model of UML with neat diagram.

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

    (a) Explain different relationships in UML.

    (b) Define following terms with notations :

        (i) Role names

        (ii) Class

        (iii) Qualified association

        (iv) Ordered association

    (c) Explain structured control in sequence diagram for conditional execution.

    (d) Explain forking and joining with diagram.

    (e) Explain concept of interface and ports.

    (f) Explain generalization and inheritance.

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

   (a) State any two types of actors used in usecase diagram. Draw a neat usecase diagram for printing result from MSBTE website.

   (b) Draw activity diagram for making photocopies from Xerox machine.

   (c) Explain importance of synchronous and asynchronous messages in sequence diagram. Draw sequence diagram for student admission in your institute.

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

   (a) List and classify various UML diagrams.

   (b) Describe propagation of operation with diagram and example.

   (c) Draw and state notations for state diagram.

   (d) Explain different notations used for component diagram.

   (e) Explain multiplicity with example.

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

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

   (a) Describe unified software development life cycle.

   (b) Describe metadata. Explain with appropriate example.

   (c) Draw sequence diagram for ATM session of withdraw money.

   (d) Explain swim lane in activity diagram with one example.

   (e) Describe notations used for deployment diagram.

   (f) Draw and state notations used to draw activity diagram.

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