

Year: I
Prog: MSc CS
F.M. 100

Sem: II
Time: 2 hrs
P.M. 50

Object Oriented Analysis and Design

A. Conceptual Questions: (Attempt any FOUR only) [15 x 4 = 60]

1. Explain the OO process model in association with Component Based Development model.
2. Describe role of decomposition in managing complexity. Also mention the difference between algorithmic and OO decomposition.
3. "UML is a language for visualizing, specifying, constructing and documenting." Explain.
4. What is a Use Case and what are its components? How does a use case scenario help representing behaviour of a system?
5. Write short notes (of any THREE only) on:
 - a. Domain object vs. Software object
 - b. Mapmaker Method
 - c. Stage and Curtain Spirit
 - d. Thumb rule

B. Modeling Exercises: [20 x 2 = 40]

6. Read the following case and do the exercises as mentioned at the end.

Weather Monitoring Station Requirements

This system shall provide automatic monitoring of various weather conditions. Specifically, it must measure:

- Wind speed
- Wind direction
- Temperature
- Barometric pressure
- Humidity

The system shall also provide the following derived measurements:

- Wind chill
- Dew point temperature
- Temperature trend
- Barometric pressure trend

The system shall have a means of determining the current time and date, so that it can report the highest and lowest values of any of the four primary measurements during the previous 24 hour period.

The system shall have a display that continuously indicates all eight primary and derived measurements, as well as the current time and date. Through the use of a keypad, the user may direct the system to display the 24-hour high or low value of any one primary measurement, together with the time of the reported value.

The system shall allow the user to calibrate its sensors against known values, and to set the current time and date.

- a. Rewrite the requirements in FURPS+ model.

OR

- b. Identify classes with their attributes and operations.
7. From the scenario text given below, draw a System Sequence Diagram.

Simple cash-only Process Sale scenario:

- a. Customer arrives at a POS checkout with goods and/or services to purchase.
- b. Cashier starts a sale.
- c. Cashier enters item identifier.
- d. System records sale line item and presents item description, price and running total.
- e. Cashier repeats steps 3-4 until indicates done.
- f. System presents total with taxes calculated.
- g. Cashier tells customer the total, and asks for payment.
- h. Customer pays and system handles payment.