B 2281

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Fifth Semester

Information Technology

IF 354 — OBJECT ORIENTED ANALYSIS AND DESIGN

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. How are objects identified in an object oriented system?

2. Mention four relationships among classes.

3. What is a use case? Mention the components of a use case diagram.

4. What are 'structural things' of UML models? Give examples.

5. What is the difference between sequence diagrams and collaboration diagrams?

6. How will you represent concurrent control in an activity diagram?

7. State the functions of different models of OMT.

8. Differentiate between descriptive attributes and naming attributes.

9. What is born - and- die life cycle form?

10. List out the properties possessed by generalization and aggregation.

PART B — (5 × 16 = 80 marks)

11. (a) Prepare a class diagram with aggregation, generalization, association and dependency for an automated temperature controller typically placed in a computer gallery and explain your design. (16)

Or

(b) Why is reusability important? How does object oriented software development system promote reusability? Compares the advantages of object oriented software development methodology and traditional software development. (16)

12. (a) (i) With suitable notations explain the various building blocks of UML in detail. (8)

(ii) Draw the use case diagram for a library book lending system. Include uses and extends relationships among uses cases in your design. (8)

Or

(b) Why is both micro development process and macro development process necessary? Explain the micro development process and macro development process in detail. (16)

13. (a) Three phase induction motors will spin either clockwise or counterclockwise, depending on the connection to the power lines In applications requiring motor operation in both directions two separate contactors (power relays) might be used to make the connections one for each direction Also in some applications of large motors the motor starts through a transformer that reduces the impact on the power supply The transformer is bypassed by a third contactor after the motor has been given enough time to come up to speed There are three momentary control inputs: requests for forward, reverse, or off. When the motor is off, forward or reverse requests cause the motor to start up and run in the requested direction. A reverse request is ignored if the motor is starting or running in the forward direction, and vice versa. An off request at any time shuts the motor off. Develop a single state diagram with two concurrent state diagrams, one to control the direction of the motor and one for starting control. (16)

Or

(b) Write short notes on :

(i) The usage of the Class Responsibility Collaboration Cards in system modeling. (8)

(ii) Interaction diagrams (8)

14. (a) Draw the object model of a banking system using Rumbaugh model. Develop a state transition diagram for the bank application user interface. (16)

Or

(b) Briefly enumerate the classification of services placed in an object oriented model. Explain the recommended approach for identifying responsibilities with appropriate example. (16)

15. (a) Explain the techniques involved in identifying and documenting static behaviors and dynamic behaviors in object oriented design. (16)

Or

(b) Discuss the steps involved in finding and documenting relationships in object oriented designing using UML. (16)
