

(3 Hours)

[Total marks: 100]

- N.B. (1) Question 1 is compulsory.
 (2) Attempt any four from remaining six.
 (3) Assumption made should be clearly stated.

1. (a) Draw a class diagram for following information. Make use of qualified association. **10**
 Explain any assumptions or design decisions that you make.
 The UK banking system consists of a number of banks. Each bank has a number of branches, each identified by a unique sort code. Banks maintain accounts, each with a unique account number. In addition, each account is held at a particular branch of the bank. Some accounts allow cheques to be written, where each cheque is identified with a cheque number.
- (b) What criteria can one employ to partition classes **10**
2. (a) Explain following concepts as applied to the dynamic modeling: - **10**
 - (i) Abstract class
 - (ii) Multiple inheritance
 - (iii) Protocol
- (b) Discuss how cohesion and coupling affect the flexibility of static modeling of a system. **10**
3. (a) Write short notes on (any two) **10**
 - (i) A 'package' in UML
 - (ii) Company diagram in UML
 - (iii) Class normalization for cohesion
- (b) Differentiate between (any two) **10**
 - (i) State & Event
 - (ii) Value & Reference semantics
 - (iii) SA/SD and JSD
4. (a) Draw a use case diagram for employee payroll system. List all the assumptions taken into consideration for the system scope. Write use case description. **10**
- (b) What is importance of modeling? Explain Booch methodology. **10**
5. (a) Explain collaboration diagrams with example. **10**
- (b) What criteria one can employ to partition classes **10**
6. (a) Explain state chart diagram with example of "life cycle of a thread in java" **10**
- (b) Explain the concept of time constraints and duration. **10**
7. (a) Discuss with example implementation architecture. **10**
- (b) Draw a component diagram for ATM system. **10**
