



(OR)

- b) i) What are requirements? Explain the types, categories and artifacts of the requirements? (8)  
ii) Draw an use case diagram for the Human Resource Manager Assistance Tool to assist HR Managers in managing the information about the employees and their activities within the Organization. This tool should provide facilities like assigning projects to the employees according to their skill sets, recording and monitoring their day-to-day activities, keeping track of project proceedings and maintaining details of external interactions & consultations. (8)

13. a) i) Generate object design for Point of Sale system using GRASP patterns? (8)  
ii) Explain the different ways to provide visibility for an Object Y to Object X? (8)

(OR)

- b) i) Explain the layered implementation model for an E-mail system and highlight the dependencies between subsystem? (8)  
ii) Draw Collaboration diagram for an online comprehensive solution to manage Internet banking. This will be accessible to all customers who have a valid User Id and Password. This system provides the following facilities: 1. Balance Enquiry  
2. Funds Transfer to another account in the same bank  
3. Request for cheque book/change of address/stop payment  
4. Mobile alert message for transactions  
5. Viewing Monthly and annual statements. (8)

14. a) Write test cases for the following ATM authentication scenario and write a Code to pass the test cases in either C++ or Java. (16)

ATM card and PIN(1234) have been issued, card is being inserted		
<i>Test cases</i>	<i>Input/user actions/conditions</i>	<i>Expected output</i>
1. Card sensed	card valid, PIN valid(1234)entered in time	Display Main menu
	card valid, PIN invalid(1254)entered in time	Display Retry message
2. Retry message	Invalid PIN(1324)entered in time, second try	Display Retry message
	Invalid PIN(1324)entered in time, Third try	Card retained, user informed

(OR)

- b) Generate design for an Online-Book Shopping system and map the generated design to code for the concepts. Use any two different refactoring to appropriate segments of the above system. (16)

15. a) i) Write down a reasonable scenario in which failing to use the Mediator would result in negative consequences such as no extensions, high coupling and low cohesion. (8)  
ii) Write short notes on adapter, singleton, factory and observer patterns. (8)

(OR)

- b) i) Explain how the requirements and analysis phase in iteration-2 differ from iteration-1 of elaboration phase. (8)  
ii) Explain the persistence framework patterns with example? (8)