Problem Statements

Cloud Computing

1. Design and develop Project Management app using Salesforce Cloud.
2. Design and develop Event Management appusing Salesforce Cloud.
3. Design and develop Helpdeskapp using Salesforce Cloud.
4. Design and develop Expense Management appusing Salesforce Cloud.
5. Design and develop Survey and Feedback app using Salesforce Cloud.
6. Design and develop Training and Learning app using Salesforce Cloud.
7. Create an application of Calculator in SalesForce.com using Apex programming Language.
8. Create an application of Temperature Conversion from Celsius to Fahrenheit in SalesForce.com using Apex programming Language.
9. Create an application of Palindrome in SalesForce.com using Apex programming Language.
10. Create an application of Reverse the String in SalesForce.com using Apex programming Language.

Software & Modelling Architecture

1. Draw a use case diagram with appropriate relationships and notations for the following description. Consider online travel planner software. Through this software, the user can book bus tickets, provide information, provide address, book a car on rent, book a hotel room. It is mandatory to provide payment information and provide address for booking of bus tickets, car on rent and a hotel room

2. Ticket reservation software provides following facilities to the users namely 1) Check ticket availability ii) Add passenger details ii) Book ticket iv) Make payment The payment can be made by credit card or net banking While booking a ticket, the user may optionally choose a seat of his preference Draw a suitable use case diagram

3. Draw a use case diagram for the system Credit card authentication system. The scenario is: The merchant submits a credit card transaction request to the credit card payment gateway on behalf of a customer. Bank which issued customer's credit card is actor which could approve or reject the transaction. If transaction is approved, funds will be transferred to merchant's bank account

4. Prepare Class diagram showing at least 10 relationships among the following object classes. Include associations and qualified associations, aggregations, generalizations, and multiplicity. You may add additional objects. Also show attributes and operations. School, playground, principal, school board, classroom, book, student, teacher, canteen, restroom, computer, desk, chair.
5. Prepare a class model for the hotel management system. The system should support chain of hotels. A hotel contains two categories of rooms: executive and normal, both AC and non AC. The customers of executive rooms can avail extra facilities like games, swimming, food service in rooms, etc. The booking is possible by Internet or by phone. If the booking is through phone, process is done by receptionist and if booking is done

through Internet the process is carried out by customer through hotel website Depending on the number of days customer stays, appropriate bill is generated The Bill also contains amount for transport, food and other facilities enjoyed by the customer along with necessary taxes. The manager should be able to generate reports like list of customers staying in the hotel, list of rooms empty, monthly/yearly income, etc

6. Prepare a sequence diagram for computing a restaurant bill. There should be a charge for each delivered item. The total amount should be subject to tax and a service charge of 18% for groups of six of more. For smaller groups, there should be a blank entry for a gratuity according to the customer's discretion. Any coupons or gift certificates submitted by the customer should be subtracted.

7. Draw a sequence diagram for a Passport Management System to get a new passport, an applicant has to apply on-line, get the appointment. He has to submit the documents in passport office on the date of appointment In case of insufficient an incorrect documents, the applicant's has to reapply and get new appointment. After submission of documents, applicant's verification is done by the police. On successful verification, passport is issued to the applicant. If verification is unsuccessful, the applicant has to reapply for passport.

8. Insurance system provides vehicle insurance to the owners. Initially the customer fills the form which has vehicle details and number's details. This information is submitted to the agent. The agent sends the information to various insurance companies. The companies quote the insurance. The agent selects the best policy and gives it to the owner. Draw an sequence diagram and other applicable notations.

Information Security

1. Write a Java/C/C++/Python program to perform encryption and decryption using the method of Transposition technique.

2. Write a Java/C/C++/Python program to implement DES algorithm.

3. Write a Java/C/C++/Python program to implement AES Algorithm.

4. Write a Java/C/C++/Python program to implement RSA algorithm.

5. Calculate the message digest of a text using the MD5 algorithm in JAVA.

Artificial Intelligence

1. Implement Depth first search algorithm and Breadth First Search algorithm, Use an undirected graph and develop a recursive algorithm for searching all the vertices of a

graph or tree datastructure.

2. Implement A star Algorithm for any game search problem.

3. Implement Greedy search algorithm for Selection Sort

4. Implement Greedy search algorithm for Dijkstra's Minimal Spanning Tree Algorithm

5. Implement Greedy search algorithm for Prim's Minimal Spanning Tree Algorithm

6. Implement Greedy search algorithm for Kruskal's Minimal Spanning Tree Algorithm

7. Implement a solution for a Constraint Satisfaction Problem using Branch and Bound and Backtracking for a graph coloring problem.

8. Implement a solution for a Constraint Satisfaction Problem using Branch and Bound and Backtracking for n-queens problem

9. Develop an elementary chatbot for any suitable customer interaction application.