



Date : 4th March 2007

Time: 13.30 – 16.30 hrs

You must answer one question from Part A and any 3 questions from Part B.

Part A Answer Question 1 or Question 2.

Silver Ray Bank

Silver Ray Bank needs a software system to provide some basic services to its customers. It has many branches, each of which has an address and a branch number.

A customer opens accounts at a branch. Each account is uniquely identified by an account number; it has a balance and a credit or overdraft limit. There are many type of accounts, including: mortgage account (which has a property as collateral), a current account, saving account, and a credit card account (which has an expiry date). Each type of account has a particular interest rate and a specific set of privileges (e.g. ability to write cheques, insurance for purchases etc.). Bank staff must be accessed for opening and closing accounts ,credit card issuing and for making changes in personal details of customers..

Customers are encouraged to use the ATMs located island wide to withdraw money and deposit money. ATM can be used for balance inquiries also.

When a customer requests a loan, the loan application is processed by a loan officer. The bank offers housing loans, personal loans, and vehicle loans.

Please state your assumptions clearly when answering the questions.

Use the above scenario to answer Question 1 or Question 2.

1. (a) Draw a use case diagram. (10 marks)
(b) Draw a class diagram with relationships. (Logical database schema) (30 marks)

OR

2. (a) Draw an entity relationship (E-R) diagram. (20 marks)
(b) Describe functional and non-functional requirements of the system. (20 marks)

Part B Answer only three (3) Questions

3. (a) What can a software engineer derive from White box testing? (6 marks)
- (b) What type of errors does Black box testing attempt to find? (6 marks)
- (c) Briefly describe the testing you would use for unit testing and validation testing. Give reasons for your answer. (8 marks)
4. (a) Describe 4 functions that a CASE tool should contain. (8 marks)
- (b) Describe two ways in which the use of CASE tools have changed the traditional method of software development. (6 marks)
- (c) Can CASE tools assist in producing documentation? Explain your answer with an example. (6 marks)
5. (a) What is meant by prototyping with respect to system analysis? (5 marks)
- (b) Give a situation where prototyping is justified. (5 marks)
- (c) Compare and contrast spiral model, prototyping and Waterfall model in software development. (10 marks)

6. The following is a Requirement specification of a small project.

A company owns a chain of tourist hotels at different locations in Sri Lanka. Each hotel offers a standardized accommodation package and each hotel has around hundred rooms. These rooms are divided equally between combinations of either single, twin or double-bedded. The charge per room per night is a standard throughout the week.

When a customer choose a hotel, graphical views of the hotel, situated environment and the interiors can be seen through the web. The views when you are looking outside from various locations in a particular hotel are also available. At present the majority of room reservations are made through Internet using credit cards. Reservations are also made via telephone and fax messages. When reserving through the web customer can also have several views of the typical rooms in the hotel. He/she can confirm the booking after making the payment.

Discuss the criteria that you would use to determine a suitable life-cycle model for this project.

7. (a) What are the parameters to measure the success of a project? (6 marks)
- (b) What is meant by quality assurance in the software industry? (8 marks)
- (c) What does software auditing achieve? (6 marks)