SLIIT
ACADEMY

Foundation Certificate
in
Information Technology

Final Examination
Semester 2 (2022)
January Intake

System Analysis & Design (FIT204)

Duration: 3 Hours

Instructions to Candidates:

- This is a closed book examination.
- This paper contains 5 questions on 8 pages without the cover page.
- Answer all questions on the paper itself.
- Read all questions before answering.
- The total marks obtainable for this examination is 100.

Question 01   (15 marks)

a) "Systems produce combinations of products, by-products or services."

     i.   *"Integration is known as a property of a system."* Explain the above statement   (1 mark)
with an example.

     ii.   *"Environment is a component of a system within which the system operates."*   (2 marks)
Explain the statement using an example.

     iii.   Why is it important to check feedbacks from a system? State two points.   (2 marks)

b) "System Analysis & Design is a step by step process for developing high quality information
systems."

     i.   State three reasons that make System Analysis & Design a difficult task.   (3 marks)

     ii.   State four skills required to be a system analyst.   (4 marks)

     iii.   Explain the role of the System Sponsors in the context of System Analysis &   (3 marks)
Design.

Question 02   (20 marks)

a) "System Development Life Cycle is an organizational process of developing and maintaining systems."

Mention the phases in SDLC and briefly explain the actions are taking place in each phase.   (5 marks)

b) "The primary challenge of project management is to achieve all of the project goals within the given constraints."

    i.   What is the definition of a project?   (2 marks)

    ii.   In the context of software project management, explain how the quality of a   (3 marks) project is achieved by utilizing the other constraints of a project.

c) Write three types of Structured Software Development Methodologies.   (3 marks)

d) **"A methodology is a formalized approach to implementing the System Development Life Cycle."**

    i.   State two situations to adopt waterfall methodology.   (2 marks)

    ii.   List down two characteristics of Rapid Application Development   (2 marks)

    iii.   Mention three differences between Throw-away Prototyping & Evolutionary   (3 marks)
           Prototyping.

Question 03 (25 marks)

Perform a structured analysis of the scenario given below and answer the questions that follows:

The "Go Green" supermarket has devised a scheme to encourage customer loyalty. To register for the scheme, a customer must supply their name, address, telephone number and email. Each registered customer is assigned a unique Customer Identification Number (CIN) and it is sent to the customer's email provided. A customer can present this CIN to the cashier along with items purchased so that the value of each purchase is recorded. At the end of each purchase the amount can be paid using a credit/debit card or cash. If the customer selects payment method as a credit card, the system asks the customer to enter the credit card details. The credit card details and transaction details are sent to Secure Payment Gateway (SPG). The SPG validates the received details and sends a confirmation back to the system. After that, a bill is generated and given to the customer.

At the end of every year, the supermarket intends to award surprise gifts to the three customers who spent the most money in the supermarket; it also intends to award a $20 shopping voucher to every customer who spent more than a threshold amount of $1500 during the year.

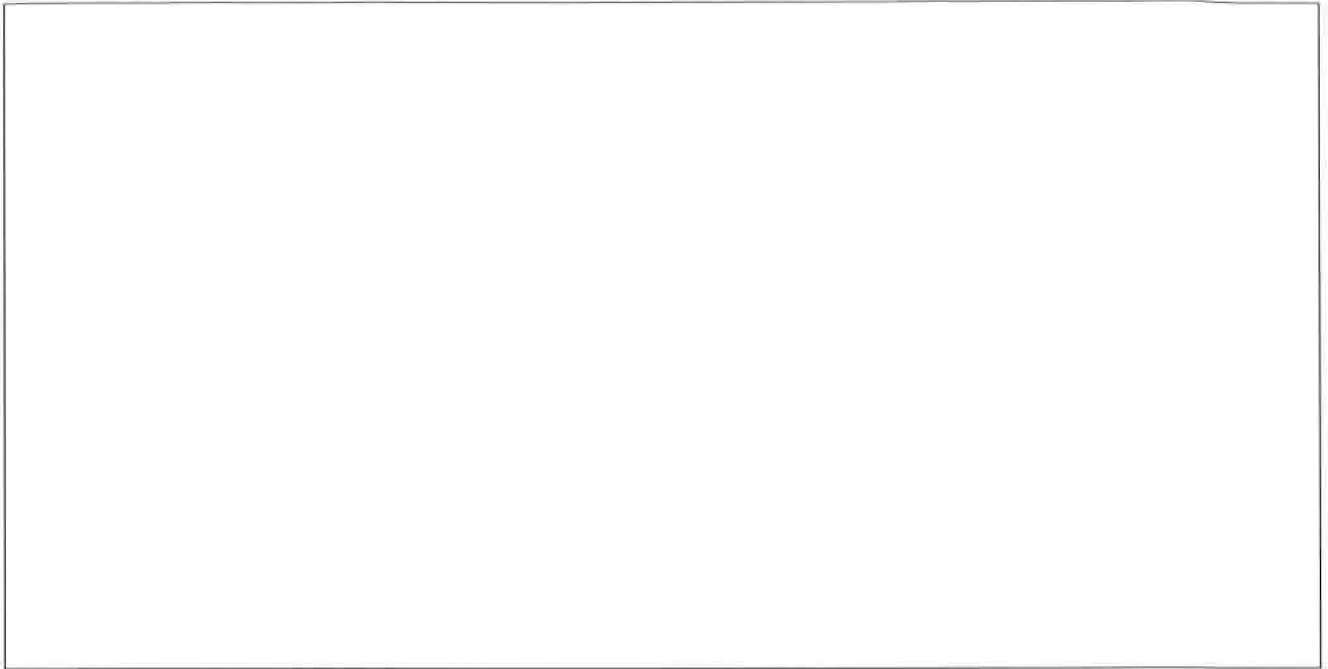a. List down all the functional requirements of the above system. (10 marks)

b. List down two non-functional requirements of the above system. (2 marks)

c. Draw the Context Diagram for the above scenario. (13 marks)

Question 4 (25 marks)

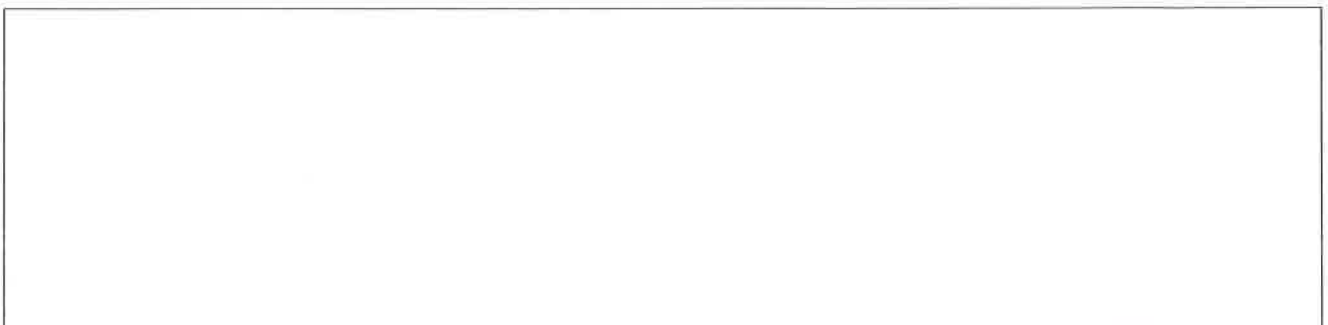a) *"Requirement Gathering is an important activity in system analysis."*

    i. Mention two techniques which can be used for both requirement elicitation and requirement validation. (2 marks)

    ii. Write down two differences between Open Ended Questions and Closed Ended Questions. (2 marks)

iii. What are the two types of interviews that can be carried out? Write two   (4 marks)
features of each type.

iv. Write three features of a good questionnaire.   (3 marks)
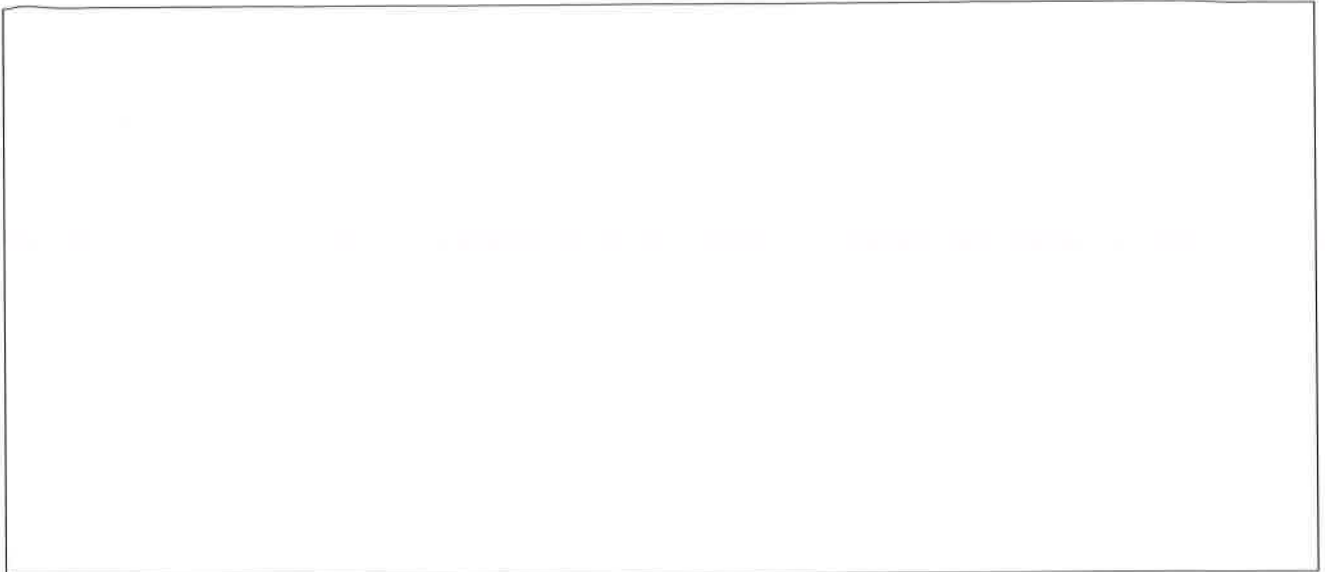
b) Given below is a user interface of a login panel.

Note: If user entered the correct email and correct password only it proceed the login,
otherwise it will show the error message
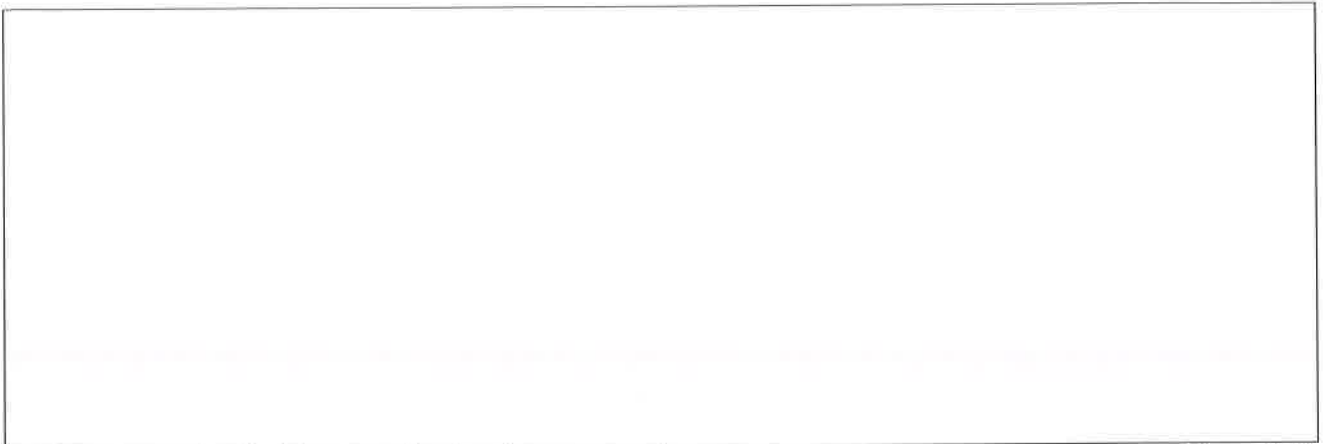
i. Draw the decision table for the above scenario.   (8 marks)
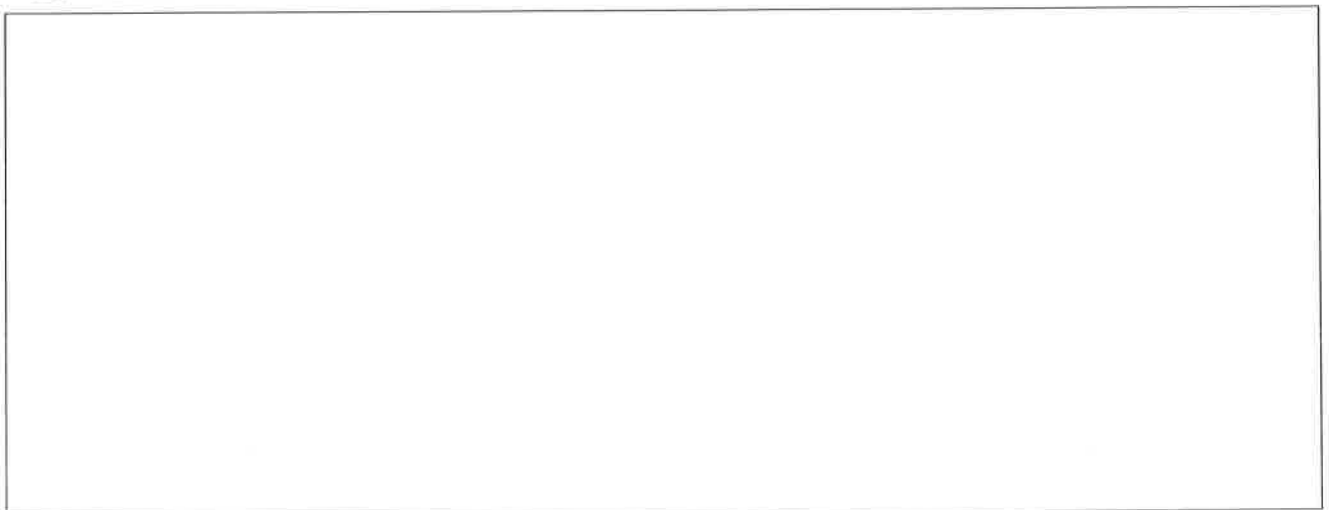
ii. Draw the simplified(compressed) decision table.   (2 marks)

iii. Draw the decision tree for the above scenario.   (4 marks)

Question 05   (15 marks)

a) What is Quality Assurance?   (1 mark)

b) Provide two differences between black box testing and white box testing.   (4 marks)

c) What is Regression Testing?   (2 marks)

d) What is Security Testing? State two principles that aims at security testing.   (2 marks)

e) Assume that you have to choose a password between 5 to 8 characters (5 and 8 inclusive).

     i. Perform Equivalence Class Partitioning.   (3 marks)

     ii. Perform Boundary Value Analysis.   (3 marks)

-------End of the Question Paper------