



Faculty of Computing and Technology

Department of Computer Science

Bachelor of Honors in Computer Science | Software Engineering | Information Technology

Batch 01 – Semester 02

End Examination

Year 2023

CS 1211, SE 1211, IT 1211 – Software Engineering

Duration: 02 Hours

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**Instructions to the candidates:**

1. Answer **ALL** the questions.
2. Illustrate your answers with clear diagrams wherever applied.
3. The paper is marked out of 100 Marks.
4. Follow the General Guidelines given by the Department of Examination for exam Start time and closing time.

**Question 01**

- A. Briefly explain the following two types of software products.
  - i. Generic Products.
  - ii. Bespoke (Customized) Products. (02 marks)
- B. State the **FIVE (05)** stages of Waterfall model of software development processes. (05 marks)
- C. Give **TWO (02)** examples of projects which would suit the Waterfall model of software development. (02 marks)

- D. Explain the concept of software development life cycle (SDLC). Provide an overview of the common phases involved in a typical SDLC, and briefly describe the purpose of each phase. (06 marks)
- E. Explain the key differences between the Waterfall and Spiral software development methodologies by providing advantages and disadvantages of each approach and situations where each might be more suitable. (10 marks)

[Total = 25 marks]

### Question 02

- A. Explain what **use cases** and **use case diagrams** are, and how they can be used to capture the functional requirements for a software system. (05 marks)
- B. Imagine you are tasked with designing a use case diagram for an online reservation system for a restaurant. The system should allow customers to browse the restaurant's menu, make reservations for specific dates and times, view their reservations, and cancel reservations if needed. Additionally, restaurant staff should be able to manage reservations, including confirming and canceling them.

Draw a use case diagram to represent this system, including actors and their interactions. Ensure that your diagram clearly illustrates the relationships between actors and use cases, and label each element appropriately. (10 marks)

- C. Illustrate a Use Case Scenario for the **Cancel Reservation** Process below.



Number	
Name	
Summary	
Priority	
Pre-conditions	
Post-conditions	
Primary actor/s	
Secondary actor/s	
Main scenario	
Extensions	

*Hint: You can use this Use Case Scenario Template.*

(10 marks)

[Total = 25 marks]

### Question 03

- A. Outline the benefits of developing a **software prototype** early in the development process. (05 marks)
- B. Explain the importance of Object-Oriented Design (OOD) in the design phase. (05 marks)
- C. "Yummy Eats" online food ordering system involves several activities, starting from the moment a customer selects a restaurant and browses the menu, to placing an order, making a payment, and tracking the delivery. Additionally, restaurant owners must be able to manage their menu items and view order details, while delivery drivers need to view and accept delivery requests.

Create an **activity diagram** that effectively represents this complex process, highlighting the flow of actions, decision points, and interactions in the system.

Ensure that your diagram is clear, well-organized, and labels each activity and decision point appropriately. (15 marks)

[Total = 25 marks]

### Question 04

- A. State THREE (03) types of software maintenance. (03 marks)
- B. Define the following two testing techniques:
  - i. Black-box testing.
  - ii. White-box testing.(08 marks)
- C. Outline the purpose of a test plan for a software validation process. (06 marks)
- D. Explain why it is generally more expensive to add a new software feature during maintenance than it would be for the same feature to be included in the original development phase. (08 marks)

[Total = 25 marks]

\*\*\*\*\*END OF THE PAPER\*\*\*\*\*