



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

Faculty of Computing & Informatics

DEPARTMENT OF INFORMATICS

QUALIFICATION : BACHELOR OF COMPUTER SCIENCE	
QUALIFICATION CODE: 07BAIF	LEVEL: 6
COURSE CODE: SAD621S	COURSE: SYSTEMS ANALYSIS AND DESIGN
DATE: DECEMBER 2025	PAPER: THEORY
DURATION: 2 HOURS	MARKS: 100

SECOND OPPORTUNITY / SUPPLEMENTARY EXAMINATION QUESTION PAPER	
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**THIS QUESTION PAPER CONSISTS OF 4 PAGES
(INCLUDING THIS FRONT PAGE)**

INSTRUCTIONS FOR THE CANDIDATE

1. Answer **ALL** questions.
2. When writing take the following into account: The style should inform than impress, it should be formal, in third person, paragraphs set out according to ideas or issues and the paragraphs flowing in a logical order.
3. Information should be brief and accurate.
4. Please ensure that your writing is **legible, neat and presentable.**

SECTION A: SHORT ANSWER QUESTIONS

[15 MARKS]

1. True / False answers

[5 marks]

For each statement, specify if **True** or **False**.

- a) Information systems consist of hardware, software, data, people, and processes.
- b) The critical path is the sequence of activities that determines the shortest completion time.
- c) A Gantt chart helps visualize task dependencies.
- d) Systems analysts are only involved at the implementation phase of a project.
- e) Object-Oriented methodology enhances reusability and system maintenance.

2. Multiple Choice Questions

[10 Marks]

1. Which diagram helps show project progress over time?
 - a) PERT Chart
 - b) Gantt Chart
 - c) Flowchart
 - d) BPMN

2. The longest path through a project network is known as:
 - a) Slack Path
 - b) Parallel Path
 - c) Critical Path
 - d) Fast Track

3. Which feasibility type focuses on benefits vs. costs?
 - a) Operational
 - b) Technical
 - c) Economic
 - d) Schedule

4. Which of the following is NOT part of the SDLC?
 - a) System Design
 - b) Implementation
 - c) Data Mining
 - d) Maintenance

5. Which of the following best defines Brooks' Law?
 - a) The fastest route to project completion
 - b) Adding manpower to a late project makes it later
 - c) A technique to minimize risk
 - d) The shortest project duration possible

SECTION B: STRUCTURED QUESTIONS

[30 MARKS]

1. Explain why identifying and managing the critical path is crucial to project success. Provide at least three (3) reasons supported by examples where relevant. [6 marks]
2. Why should a systems analyst consider strategic planning as a critical component of systems development phase? [10 marks]
3. Discuss four (4) types of maintenance that could be done during the system maintenance phase of any software/ system development stage. [4 marks]
4. Discuss three (3) types of diagrams, Systems Analyst use to help users and business people to understand the system design process. [3 marks]
5. HCI concepts include all the communications and instructions necessary to enter input into the system and to obtain output in the form of screen displays or printed reports. List and discuss seven (7) principles of a successful user interface design. [7 marks]

SECTION C: CASE STUDY AND KNOWLEDGE APPLICATION

[55 MARKS]

1. **SCENARIO ONE (1)** - Komesho Travel plans to build a new online booking system. Below are the project tasks:

Task	Description	Duration (Weeks)	Predecessor(s)
A	Requirements Gathering	2	
B	Design	3	A
C	Development	5	B
D	Testing	2	C
E	Training	1	D
F	Deployment	1	E

- a) Draw a PERT chart for the above scenario. [5 marks]
- b) Draw a Gantt Chart for the project scheduled to start on 20 October 2025. [5 Marks]

Task	Duration (Weeks)	Timeline
A	2	Week 1-2
B	3	Week 3-5
C	5	Week 6-10

D	2	Week 11-12
E	1	Week 13
F	1	Week 14

- a) Determine the Critical Path [3 Marks]
- b) Explain why the critical path is important [2 Marks]
2. **SCENARIO TWO (2)** - You are designing an online ordering system for *Komesho Shop*, an e-commerce platform. The system allows customers to browse products, place orders, make payments, and track deliveries.
- a) Draw a Level 0 Context Diagram showing the external entities and data flows between the Online Ordering System and the external entities. [10 marks]
- b) Draw a Level 1 Data Flow Diagram (DFD) showing internal processes such as Order Processing, Payment Handling, Inventory Update, and Shipping. [10 marks]
3. **SCENARIO THREE (3)** - You are tasked with modeling the functional requirements of the *Online Ordering System* using UML.
- a) Create a UML Use Case Diagram that captures the main interactions between Customer, Admin, and the System. [10 marks]
- b) Briefly explain three (3) main use cases. [5 marks]

END OF EXAMINATION PAPER