



**PAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF COMPUTING AND INFORMATICS

DEPARTMENT OF INFORMATICS

QUALIFICATIONS: Bachelor of Informatics	
QUALIFICATION CODE: 07BAIF	LEVEL: 6
COURSE CODE: SAD621S	COURSE: Systems Analysis and Design
DATE: November 2025	SESSION: 1
DURATION: 2 Hours	MARKS: 80

FIRST OPPORTUNITY EXAMINATION	
EXAMINERS:	Dr Gabriel Nhinda Mr Freddy Embashu Prof. Suama Hamunyela
MODERATOR(S):	Prof. Samuel Akinsola

**THIS EXAMINATION PAPER CONSISTS OF 3 PAGES
(INCLUDING THIS FRONT PAGE)**

INSTRUCTIONS FOR THE CANDIDATE

1. Read all the questions carefully.
2. Answer ALL QUESTIONS.
3. When writing, consider the following: The style should inform rather than impress; it should be formal, written in the third person; paragraphs should be organised according to ideas or issues; and the paragraphs should flow in a logical order.
4. Information should be brief and accurate.
5. Please ensure that your writing is legible, neat and presentable

SECTION A: DEFINITION OF TERMS

[20 MARKS]

1. Define the following terms.

- a) Parallel operation [2 Marks]
- b) Third-party software [2 Marks]
- c) User Experience [2 Marks]
- d) Business Analytics [2 Marks]
- e) Development cost [2 Marks]
- f) Object Model [2 Marks]
- g) Use case [2 Marks]
- h) Business logic [2 Marks]
- i) Stratified sample [2 Marks]
- j) Scrum [2 Marks]

SECTION B: SHORT ANSWER

[20 MARKS]

- 1) A systems analyst is central to the development of information systems.
 - a) Briefly explain Four (4) skills and knowledge that ALL systems analysts should possess [8 Marks]
 - b) With the skills in (a), a systems analyst understands the importance of early strategic planning within systems projects. Provide three (3) reasons a strategic planning is important. [6 Marks]
- 2) In modern times, any information system development needs to prioritize system security. Explain the three (3) system security concepts that enable data and system security. [6 Marks]

SECTION C: STRUCTURED QUESTIONS

[20 MARKS]

- 1) Often, requirement gathering can be a complex activity. However, various techniques exist that are sustainable for different contexts. One such technique is the Joint Application Development (JAD). A JAD team typically meets over a period of days or weeks in a dedicated conference room or an off-site location. Discuss the six (6) key JAD participants and their respective roles. [12 Marks]
- 2) As a systems analyst, when tasked with creating a new system within an organisation that already exists, there is often a need to create logical and physical models.

- a) When conducting an as IS analysis of an existing information system, what sequence is recommended as best practice between logical and physical models? Please justify your answer. [5 Marks]
- b) Requirements gathering present numerous challenges to the systems analyst. As System Analyst, identify three (3) of the most significant challenges. [3 Marks]

SECTION D: CASE STUDY AND KNOWLEDGE APPLICATION

[20 MARKS]

Carefully read the case study below (Alpha Shuttle) and attempt to answer the questions that follow.

Alpha Shuttle is an independent taxi company operating in a major city. Alpha Shuttle owns taxis which it rents out to drivers on an annual basis. Each vehicle is effectively rented out to three (3) drivers to cover eight (8) hour shifts in a day. Alpha Shuttle is a profitable company because it has built up a good reputation locally, and there is always a waiting list of drivers wanting to apply to rent a vehicle. Alpha Shuttle expands gradually by purchasing new vehicles from local car dealers. Each driver pays an annual rental fee in advance to Alpha Shuttle in return for use of a vehicle for 8 hours a day every day of the year. In addition to the annual rental, Alpha Shuttle takes 5% of the money a driver earns every week. Alpha Shuttle is responsible for taxing, insuring and maintaining vehicles. If a vehicle is due for a service or needs to be repaired, Alpha Shuttle contacts a garage and arranges it. Alpha Shuttle keeps records of the repairs and services for each vehicle, and records of the corresponding garages. At the end of each shift, drivers give the money they have earned to Alpha Shuttle. If they needed to refuel the vehicle, they also submit an expense claim at the end of the shift. At the end of every week, Alpha Shuttle calculates the amount owed to each driver based on the money earned from fares, the expense claims and the deduction of 5%. The drivers are then paid.

- i. Develop a context diagram for Alpha Shuttle. [10 marks]
- ii. With reference to the Alpha Shuttle case study, produce a system Use Case Diagram [10 marks]