



**PAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

**FACULTY OF COMPUTING AND INFORMATICS
DEPARTMENT OF INFORMATICS**

QUALIFICATION: BACHELOR OF INFORMATICS	
QUALIFICATION CODE: 07BAIT	LEVEL: 6
COURSE CODE: PAI621S	COURSE: PRINCIPLES AND APPLICATION OF INFORMATICS
SESSION: NOVEMBER 2025	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 70

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S):	Prof Irja Shaanika
MODERATOR:	Dr Gabriel Nhinda

INSTRUCTIONS FOR THE CANDIDATE
<ol style="list-style-type: none">1. Answer ALL the questions on the answer scripts provided.2. Answer EACH section on a new page.3. Write clearly and neatly.4. Be guided by the number of marks allocated when answering the questions.5. Number your questions clearly.

PERMISSIBLE MATERIALS
None

**THIS EXAMINATION PAPER CONSISTS OF 6 PAGES
(INCLUDING THIS FRONT PAGE)**

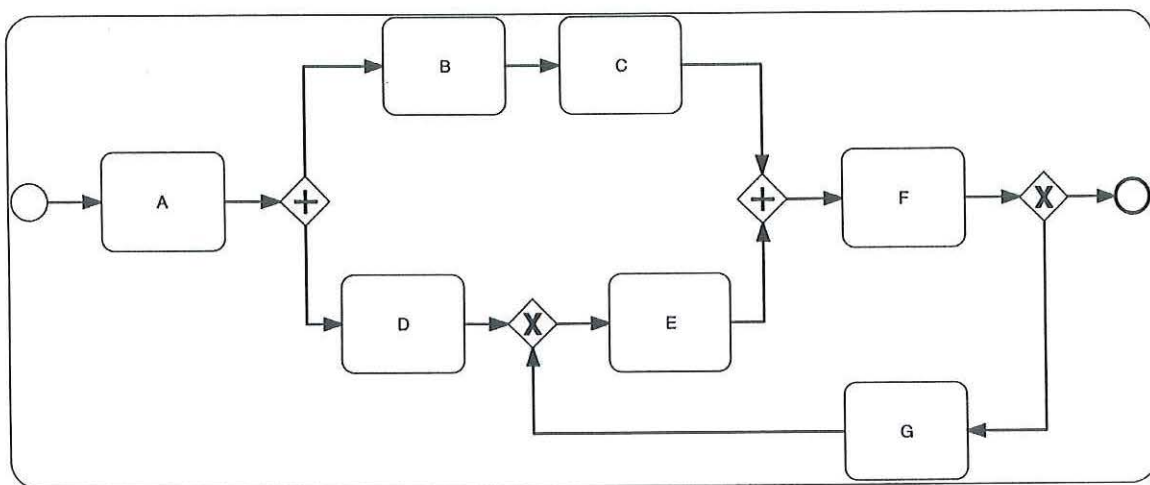
Section A: Multiple Choice Questions

[10 Marks]

Each question is 1 mark.

1. In a fishbone diagram, the head of the fish represents which of the following?
 - A. The solution
 - B. The causes
 - C. The problem
 - D. The team

2. The BPMN diagram below contains an incorrect gateway. Which one is the incorrect gateway?



- A. The AND gateway following task A
 - B. The XOR gateway following task D
 - C. The AND gateway preceding task F
 - D. The XOR gateway following task F
-
3. Which statement about pools and lanes is true?
 - A. An empty pool is not allowed.
 - B. A collaboration process is a process inside a pool.
 - C. A pool represents a subprocess.
 - D. An embedded subprocess cannot contain pools and lanes

 4. The technology is readily produced and available as an off-the-shelf solution. A growing community builds around the technology, and an ecosystem of relevant products and services emerges. The above paragraph represents which phase:
 - A. Trough of Disillusionment
 - B. Slope of Enlightenment
 - C. Innovation Trigger
 - D. Plateau of Productivity

5. Which phase often sees a surge of vendors, flooding the market with complementary and competing products?
 - A. Trough of Disillusionment
 - B. Slope of Enlightenment
 - C. Plateau of Productivity
 - D. Peak of Inflated Expectations

6. Other authors extend Porter's value chain Model set of two categories to include a third category called:
 - A. Suppliers' processes
 - B. Management processes
 - C. Core processes
 - D. Support processes

7. What is the job of the process owner?
 - A. Responsible for process design, process performance and development of the solution
 - B. Execution of project management for re-engineering
 - C. Development of the database design for the responsibility
 - D. Selection and procurement of BPM tools

8. According to Porter's classification of processes, which of the following is/are support processes?
 - A. The process for handling requests from employees to take their annual vacation
 - B. The process for handling customer complaints (complaint-to-resolution)
 - C. The process for producing the annual report of the company
 - D. The process for recovering overdue payments from customers

9. Which of the following is the function of purchasing inputs used in the firm's value chain?
 - A. Procurement
 - B. Inbound Logistics
 - C. Firm Infrastructure
 - D. Operations

10. Which of the following are possible reasons for decomposing a process model into sub-process models?
 - A. When there are too many end events in a process model, and we wish to reduce their number
 - B. When two events of the same type cannot be linked by a sequence flow
 - C. When there are too many crossing arcs in the model
 - D. When we want to avoid redundancies between multiple process models that share common parts

Section B: True and False Questions

[10 Marks]

Each question is 1 mark.

1. The term “improvement” may take different meanings depending on the objectives of the organisation. Typical examples of improvement objectives include reducing costs, reducing execution times and reducing error rates.
2. The porter’s value chain distinguishes three categories of processes: core processes, support processes and human resources management.
3. In BPMN, both pools and lanes may represent a process participant, a business unit or a software system.
4. Improvement initiatives need to be a one-off activity to save the organisation time and money.
5. If the intermediate event signals a message being sent, the envelope is NOT darkened.
6. For every procure-to-pay process, there is a corresponding quote-to-cash process on the supplier’s side.
7. A maturity assessment is aimed at establishing a baseline for discussing the completeness and the quality of the set of processes executed in an organisation.
8. Managers are experts in carrying out the job they oversee.
9. The manager’s main interest is to optimise how a job is done with the resources under their supervision.
10. With XOR-split routes, at least two outgoing branches can be taken.

Section C: Structured Questions

[30 Marks]

Question 1: Explain how the Hype Cycle can guide organisations in adopting innovations.

[10 marks]

Question 2: Briefly explain the four different types of exceptions that can occur in an organisation and how you would handle each type in a modelling context.

[12 marks]

Question 3: Provide a clear distinction between the roles of process analysts and domain experts.

[8 marks]

Section D: Practical Questions [20 Marks]

Question 1: As a process analyst working for a bank, model the following business process. [10 marks]

The loan request process handles the necessary activities to receive, analyse and approve a loan application submitted by a customer of a financial entity. A simplified version of this process consists of the following steps.

- When a customer submits a loan request together with the required documents, the information submitted is first recorded in an archive and then the application is verified.
- If the result of the verification is negative, the loan is refused, and the process is complete. Otherwise, if the result of the verification is positive, the application is further investigated in detail to decide if it can be approved or not.
- Finally, the amount of the loan is disbursed if approved. If not approved, the loan is refused, and the customer is informed about the reasons for the rejection.

Question 2: As an Informatics student, you are requested to carry out a root cause analysis for the issue bellow by coming up with a cause-and-effect (fishbone) diagram to identify and categorise the potential reasons for the declining enrollment in the Computer Science program. Use the 6Ms(Man, Method, Machine, measurement, Millieu,Material) in your categories: [10 marks]

Background to the scenario:

The number of students enrolling in the Computer Science (CS) program has dropped by 20% over the last three years. The university is concerned about this trend because the Computer Science program is a key part of its STEM offerings. The decrease in enrollment could negatively affect funding, future course offerings, and the university's overall reputation. University leadership wants to understand the root causes of the decline in order to develop an effective solution.

The End