



**NAMIBIA 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: DECEMBER 2025	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 70

SECOND OPPORTUNITY/ SUPPLEMENTARY 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 5 PAGES
(INCLUDING THIS FRONT PAGE)**

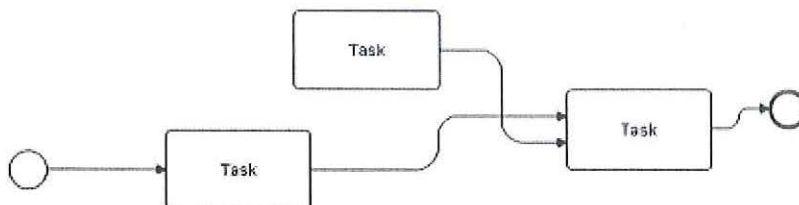
Section A: Multiple Choice Questions

[10 Marks]

Each question is 1 mark

1. The secondary activity in Porter, dealing with the acquisition of inputs or resources, is said to be.
A. Procurements
B. Resources management
C. Infrastructure
D. Development
2. In Business Process Modelling Notation, which is true about an association?
A. Data descriptions between two Messages are connected to the same pool with an event object as input to or an output from an activity.
B. Information structures exist between two Flow Objects
C. Artifacts are associated with Activities and Control Objects to show that an event object is either an input to or an output from an activity
D. A directional Association is often used with Data Objects to show that a Data Object is either an input to or an output from an activity

3. What is wrong with the BPMN diagram?



- A. The sequence flow starts with an end event
 - B. The sequence flow starts with an intermediate event
 - C. An activity starts without a sequence flow
 - D. The activity has no attached intermediate event
4. The gateway controls which aspect of a business process?
A. Divergence and convergence
B. The message
C. The sequence and message flow
D. The data

5. How do you indicate that the sub-process is being invoked?
 - A. Use a collapsed sub-process activity with a thicker border
 - B. Use expanded sub-process activity with a thicker border
 - C. Use collapsed and sub-process activity with a thin border
 - D. Use collapsed and sub-process activity with a thicker border

6. Which stage provides the basis for defining pools and lanes?
 - A. Identify the process boundaries
 - B. Identify activities and events
 - C. Identify resources and their handovers
 - D. Identify the control flow

7. Why is it important to identify patterns in the information provided by domain experts?
 - A. Patterns can be utilised for constructing parts of a process model
 - B. Models have to look nice to be engaging to a wide audience
 - C. To progress with the project, it is important to have a short and precise set of working hypotheses
 - D. They will be useful when designing resources and handovers

8. The following is a disadvantage of which method: the models resulting from process mining may not be directly understandable.
 - A. Observation
 - B. Automatic process discovery
 - C. Document analysis
 - D. Interview based

9. A step that is required due to the regulatory environment of the business is called?
 - A. Business Value-adding
 - B. Non-value adding
 - C. Value-adding
 - D. Environment value adding

10. To understand the cause of process defects, one needs to do:
 - A. Root cause analysis
 - B. Waste elimination analysis
 - C. Defects analysis
 - D. Non-value adding analysis

Section B: True and False Questions

[10 Marks]

Each question is 1 mark.

1. Application-to-approval is a type of process that starts when a customer raises a problem or issue, such as a complaint related to a defect in a product or an issue encountered when consuming a service.
2. Functional units were created to address the challenge of how to differentiate between the responsibilities of many managers.
3. Business process re-engineering provides concepts, methods, techniques, and tools that cover all aspects of managing a process.
4. A side-effect of the ideas of Taylor and his contemporaries was the emergence of an altogether new class of professionals, that of managers.
5. A key element in Taylor's approach was an extreme form of labour division.
6. A process architecture serves as a framework for defining the priorities and the scope of process modelling and redesign projects.
7. An intermediate message event signals the receipt of a message, or that a message has just been sent, during the execution of the process.
8. A procure-to-pay process can be seen as the dual of the quote-to-cash process in the context of business-to-business interactions.
9. Why-why diagram depicts the relationship between a given negative effect and its causes.
10. One of the reasons for re-designing an existing business process relates to the organic nature of the organisation.

Section C: Structured Questions

[30 Marks]

Question 1: Briefly discuss what was transpiring during the prehistoric stage in terms of humans' focus and capabilities. [10 marks]

Question 2: As a process manager, discuss three criteria you would employ to evaluate process prioritisation in your organisation. [10 marks]

Question 3: The fact that modelling knowledge and domain knowledge are often available to different persons in a modelling project has strong implications. Discuss three challenges as a result of this. [10 marks]

Section D: Practical Questions

[20 Marks]

Question 1: Model the Purchase Order Generation process described below using the business process management notation language. [10 marks]

The goal of this process is to automatically generate purchase orders according to the raw materials inventory levels and to manage their approval, record them in the company accounting system and deliver them to suppliers. The process is organised as follows.

- When the inventory level reaches a reorder point, the process starts, and immediately, a purchase order is generated and checked for approval or rejection.
- If the order is approved, it will be delivered to the supplier, and its details are sent to the account system for being recorded. These two last activities can be performed in any order. Finally, the process completes.

Question 2: The University registration process is viewed by many students to be slow and ineffective. As an Informatics student, you are requested to carry out a root cause analysis of the registration process and design a cause-and-effect (fishbone) diagram to identify and categorise the potential reasons for the ineffectiveness. Use the 6Ms (Man, Method, Machine, measurement, Millieu, Material) in your categories: [10 marks]

The End