



**PAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

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

<b>QUALIFICATION: BACHELOR OF INFORMATICS</b>	
<b>QUALIFICATION CODE: 07BAIT</b>	<b>LEVEL: 6</b>
<b>COURSE CODE: PAI621S</b>	<b>COURSE: PRINCIPLES AND APPLICATION OF INFORMATICS</b>
<b>SESSION: JANUARY 2024</b>	<b>PAPER: THEORY</b>
<b>DURATION: 3 HOURS</b>	<b>MARKS: 70</b>

<b>SECOND OPPORTUNITY/ SUPPLEMENTARY EXAMINATION QUESTION PAPER</b>	
<b>EXAMINER(S):</b>	Dr Irja Shaanika
<b>MODERATOR:</b>	Ms Albertina Shilongo

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

<b>PERMISSIBLE MATERIALS</b>
<ol style="list-style-type: none"><li>1. Calculator.</li></ol>

**THIS EXAMINATION PAPER CONSISTS OF 7 PAGES  
(INCLUDING THIS FRONT PAGE)**

**Section A: Multiple Choice Questions**

**[15 Marks]**

*Students must write the question number and letter of the correct answer.*

1. What are disruptive innovations best known for?  
A) Create a new market  
B) Extend an existing market  
C) Only makes an existing market die out  
D) None of the above
  
2. The Gartner Hype cycle is about the evolution of ...  
A) Customer products  
B) Innovations  
C) Innovative Firms  
D) Competitive Firms
  
3. Applying for a travelling visa, is an example of which business process type? [1 mark]  
A. Issue-to-resolution  
B. Application-to-approval  
C. Procure-to-pay  
D. Order-to-cash
  
4. At which stage were the involved consumers and producers of a given good often the same persons? [1 mark]  
A. Prehistoric times  
B. Ancient times  
C. Middle Ages:  
D. Industrial Revolution:
  
5. The output of process identification is a \_\_\_\_\_. [1 mark]  
A. Designation  
B. Evaluation Phase  
C. process Architecture  
D. Root Cause Analysis
  
6. The secondary activity in Porter, dealing with the acquisition of inputs or resources is said to be. [1 mark]  
A. Procurements  
B. Resources management  
C. Infrastructure  
D. Development
  
7. In BPMN, which is true about an association? [1 mark]  
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

**Section A: Multiple Choice Questions**

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8. The gateway controls which aspect of a business process? [1 mark]
- A. Divergence and convergence
  - B. The message
  - C. The sequence and message flow
  - D. The data
9. How do you indicate that the sub-process is being invoked? [1 mark]
- 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.
10. Which stage provides the basis for the definition of pools and lanes? [1 mark]
- A. Identify the process boundaries.
  - B. Identify activities and events.
  - C. Identify resources and their handovers.
  - D. Identify the control flow.
11. The following is a disadvantage for which methods: the models resulting from process mining may not be directly understandable. [1 mark]
- A. Observation
  - B. Automatic process discovery
  - C. Document analysis
  - D. Interview based.
12. A step that is required due to the regulatory environment of the business is called? [1 mark]
- A. Business Value-adding
  - B. Non-value adding
  - C. Value –adding
  - D. Environment value adding
13. To understand the cause of process defects one needs to do: [1 mark]
- A. Root cause analysis
  - B. Waste elimination analysis
  - C. Defects analysis
  - D. Non-value-adding analysis
14. Factors related to a wrong assessment or an incorrectly performed step; is discussed under which 6Ms? [1 mark]
- A. Milieu
  - B. Man
  - C. Method
  - D. Material

15. A domain expert is any individual who has intimate knowledge about how a process or activity is performed. Which of the individuals below cannot be a domain expert? [1 mark]
- A. Process owner
  - B. Process manager
  - C. Process supplier
  - D. Process analyst

**Section B: Structured Questions**

**[25 Marks]**

Question 1: Differentiate between the data source and data artifacts. [4 marks]

Question 2: What are some of the disadvantages that are associated with document analysis when gathering information about a specific process? [3 marks]

Question 3: As a technologist –Discuss how the Gartner Hype Cycle guides innovations selection and investment. [5marks]

Question 4: Technologies such as Machine Learning are taking decades before they reach a plateau of productivity. Discuss some of the reasons behind their slow pace. [4 marks]

Question 5: Differentiate between over-processing and over-production as sources of process waste. [4marks]

Question 6: Explain the concept of the global process model in BPMN. [3marks]

Question 7: What are process exceptions? [2 marks]

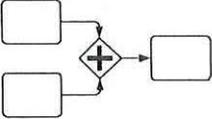
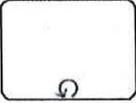
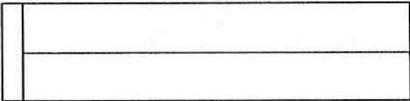
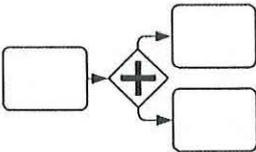
**Section C: Practical Questions**

**[30 Marks]**

Question 1: Consider the following summary of issues reported by a travel agency. Identify the main issue and construct a cause-effect diagram for the travelling agency. [10 marks]

A travel agency has recently lost several medium-sized and large corporate customers due to complaints about poor customer service. The management team of the travel agency decided to appoint a team of analysts to address this problem. The team gathered data by conducting interviews and surveys with current and past corporate customers and also by gathering customer feedback data that the travel agency has recorded over time. About 2 % of customers complained about errors that had been made in their bookings. In one occasion, a customer had requested a change to a flight booking. The travel agent wrote an e-mail to the customer suggesting that the change had been made and attached a modified travel itinerary. However, it later turned out that the modified booking had not been confirmed in the flight reservation system. As a result, the customer was not allowed to board the flight and this led to a series of severe inconveniences for the customer. Similar problems had occurred when booking a flight initially: the customer had asked for certain dates, but the flight tickets had been issued for different dates. Additionally, customers complained of the long times it took to get responses to their requests for quotes and itineraries. In most cases, employees of the travel agency replied to requests for quotes within 2–4 working hours, but in the case of some complicated itinerary requests (about 10 % of the requests), it took them up to 2 days. Finally, about 5 % of customers also complained that the travel agents did not find the best flight connections and prices for them. These customers essentially stated that they had found better itineraries and prices on the Web by searching by themselves.

Question 2: For each of the graphical notations shown below, state the name and its purpose in the business process modelling project. [10 marks]

Graphical Notation	Name	Purpose of the notation
a) 		
b) 		
c) 		
d) 		
e) 		

Question 3: The following description refers to an overtime business registration process. Model the process using Business Process Modeling Language Notation. [10 marks]

- a) Overtime Registration needs to be requested from an employee in the sales department to the responsible manager.
- b) First, the employee needs to create an overtime registration and also needs to send this registration to his manager.
- c) Upon receipt of this request, the manager evaluates/estimates this overtime registration request.
- d) On this level, the manager may either decline the registration request and then the employee will receive the declined request, or he may approve the request and at this stage, the process ends for both choices.

The end