

188.390 Unternehmensmodellierung und Business Engineering

Test 1 - Retake

Group A

Vienna University of Technology

March 3, 2016

Last name: _____

Given name: _____

Student ID: _____

Points: _____

Time: 45 mins

Scoring table

Question	Points	Score
Business Engineering	4	
Value Chain Model (Porter)	4	
Characteristics of a Model	6	
Business value of IT	6	
Process identification steps	4	
Colored Petri Nets	4	
EPCs: Role of operators	2	
BPMN Diagram types	2	
BPMN objectives	4	
BPMN modeling rules: Message and sequence flows	2	
Cycle time	3	
Queuing Theory	2	
Reengineering vs. improvement	4	
Process redesign: Task composition	4	
Total:	51	

1. Business Engineering (4 points)

What is "business engineering"?

2. Value Chain Model (Porter) (4 points)

Describe Porter's value chain concept and illustrate it by sketching an example.

3. Characteristics of a Model (6 points)

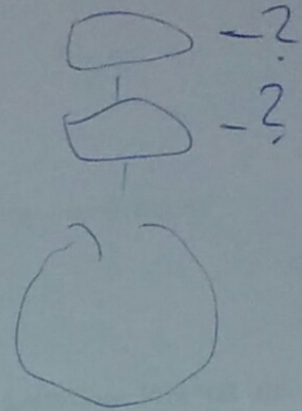
Name and succinctly describe the three characteristics of a model (according to Stachowiak's general model theory).

4. **Business value of IT** (6 points)

Discuss the strategic relevance of IT for competing organizations. What role do processes play in the creation of value through IT? In your opinion, does IT generate sustainable competitive advantage?

5. Process identification steps (4 points)

Succinctly describe the two major phases in the process identification stage of the BPM lifecycle.



6. Colored Petri Nets (4 points)

What are colored Petri nets and how do they differ from classic Petri nets?

7. EPCs: Role of operators (2 points)

Which of the following statements about operators in *Event-driven process chains* (EPCs) are correct?

- ☐ Operators relate functions and events
- ☐ An *(X)OR join* operator can only follow after a function, but not after an event
- ☐ All inputs and outputs of an operator must have the same type
- ☐ An *AND split* operator can follow after an event

8. BPMN Diagram types (2 points)

Which of the the following are *not* BPMN diagram types?

- ☐ Business Process Diagram
- ☐ Choreography Diagram
- ☐ Network Diagram
- ☐ Flow Diagram

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9. BPMN objectives (4 points)

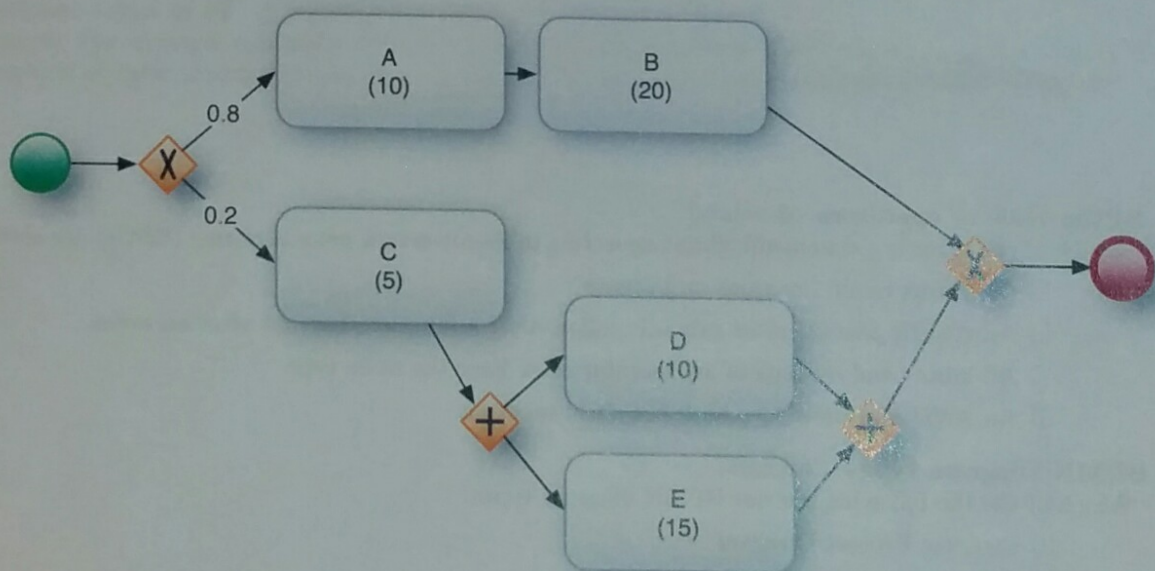
What are the main objectives of BPMN (Business Process Modeling and Notation)?

10. BPMN modeling rules: Message and sequence flows (2 points)

Which of the following flows are allowed in BPMN?

- ☐ Message flows *within* lanes and within pools
- ☐ Sequence flows across sub-process boundaries
- ☐ Sequence flows *between* pools
- ☐ Message flows *between* pools

11. Cycle time (3 points)



Calculate the *average cycle time* for the given process.

12. **Spending Plans (2 points)**

What statement about Spending Plans (SP) is correct?

- ☐ SP is used to write the budget request submission (i.e. when costs have to be allocated that cannot provide the full or near immediately)
- ☐ SP requires users submit using mathematical models
- ☐ Specific activities in spending activities are shown in detail
- ☐ SP is a simulation-based project evaluation approach

13. **Engineering vs. Implementation (2 points)**

What is the difference between technical project engineering and technical project implementation?

14. **Process redesign: Task composition (2 points)**

Discuss the advantages and disadvantages of splitting and merging tasks.

12. Queuing Theory (2 points)

What statements about Queuing Theory (QT) are correct?

- ☐ QT is useful for models that involve resource contention (i.e., when cases have to wait for resources that cannot process the inflow of cases immediately)
- ☐ QT analyzes system behavior using mathematical models
- ☐ Analytic solutions to queuing problems can always be derived
- ☐ QT is a simulation-based process evaluation approach

13. Reengineering vs. improvement (4 points)

What is the difference between business process reengineering and business process improvement?

14. Process redesign: Task composition (4 points)

Discuss the advantages and disadvantages of splitting and merging tasks.