

This final exam is based on 20 questions. The set of questions represents a total of 20 points. Make sure to answer them completely. As a reminder, the use of English language for answer is acceptable as well as French language.

Lean Engineering Part

1. What are the fundamentals in the house of Toyota? (1pt)

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2. Lean Basics: What are the principles of Lean? (1pt)

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3. Quote at least 5 types of wastes: (1pt)

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4. What are the advantages of “single piece flow” process in comparison to “batch flow”? (1pt)

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5. What is the purpose of the first step of product design? (1pt)

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6. Quote at least 5 useful methods during the conceptual design stage: (1pt)

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7. What are the main steps of the product development process? (1/2 pt)

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8. What are the 4 main aspects of the role of a system engineer? (1pt)

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9. What is the sufficient % of System Engineering support required to control the product development process? (1pt)

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10. What is the definition of the QFD method? (1/2 pt)

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11. What are the key drivers of Lean Engineering in a New Product Introduction process and what is the main financial gain? (1pt)

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12. What is the definition of the transfert function? (1pt)

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13. Which is the design phase where TRIZ method is applied? (1pt)

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Knowledge management Part

(Please check only one answer per question)

1. What are the main stages of knowledge management? (1pt)

- Identify - Save - Broadcast
- Identify - Elicit - Save - Broadcast - Evaluate - Update
- Elicit - Save - Evaluate - Broadcast

2. What is the main interest of knowledge modeling? (1pt)

- Analyze a world of knowledge
- Understand the functioning of an organization based on roles, activities, knowledge and competencies
- Create a knowledge base

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3. What are the objectives of knowledge management? (1pt)
- Elicit the know-how of a company
 - Make economical profits
 - Exchange information between different companies
4. What is the objective of eliciting knowledge based on expert interview? (1pt)
- Model a learning organization
 - Create a knowledge base
 - Write a knowlege memory

Knowledge-based Engineering Part

1. What is the objective of BPMN? (1pt)
- Describe an engineering process
 - Describe an organization
 - Describe a function
2. What is the objective of the UML Class Diagram? (1pt)
- Describe the dynamical process of an organization
 - Describe a concepts network related to a business vocabulary
 - Describe a concepts network related to a business process
3. Explain how to define and apply an KBE strategy during product design. Propose at least two approaches. (2pt)

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