

Higher Normal School of Technological Education of Skikda Department of Technology (1 st semester 2023/2024)	Final Exam (15/01/2024). Technical English fourth-year classes Duration: 2 hours.
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Exam Correction:

- I. Reading Comprehension:** Read the Text carefully and answer the following questions (6 points).

Questions with answers:

- How has Artificial Intelligence impacted maintenance in engineering?
 - Artificial Intelligence utilizes machine learning algorithms to predict equipment failure, enabling proactive maintenance and minimizing downtime. (1p.)
- What benefits have Artificial Intelligence-driven design optimization brought to engineering?
 - Generative design algorithms have allowed engineers to explore numerous design possibilities, creating lighter, more durable, and cost-effective structures. (1p.)
- What new possibilities have emerged with the integration of Artificial Intelligence in autonomous systems?
 - AI integration has enabled autonomous systems like vehicles and drones to navigate complex environments with precision and safety by enhancing decision-making capabilities. (1p.)
- What industries have seen substantial cost savings due to Artificial Intelligence's role in predictive maintenance?
 - Industries relying on critical machinery have seen substantial cost savings due to predictive maintenance facilitated by AI. (1p)
- In what ways does Artificial Intelligence-driven design optimization benefit the creation of complex structures?
 - It streamlines the process by exploring numerous design possibilities considering various parameters and constraints to achieve optimal outcomes. (1p.)
- Find an appropriate title to the text.
 - The Role of Artificial Intelligence in Engineering. (1p.)

II. Vocabulary and technical terms

- Match the following technical terms to their definitions (2 points).
 - The force that causes a material to be pulled apart. (Answer: 3. Tension). (0.5 p.)
 - Materials used to strengthen or support structures. (Answer: 2. Reinforcement). (0.5 p.)
 - A force acting parallel to a surface, often causing one part of the material to slide. (Answer: 1. Shear force). (0.5 p.)

- d. The ability to maintain or support without being depleted over time. (Answer: 4. Sustainability). (0.5 p.)

III. Grammar and Tenses:

A. Complete the sentences by choosing the correct verb tense. (2 points)

1. By next month, the team **will finalize** the design specifications. (0.5 p.)
2. Engineers **conducted** a thorough analysis of the structural integrity. (0.5p.)
3. The team **completed** the project ahead of schedule. (0.5 p.)
4. The data **indicates** a significant correlation between temperature and pressure. (0.5 p.)

B. Rewrite the following sentences in passive voice. (4 points)

1. The research team conducted the experiments last week
- The experiments **were conducted** by the research team last week. (1p.)
2. Engineers will design the new prototype by the end of this month.
- The new prototype **will be designed** by the end of the week. (1p.)
3. The construction crew is building the new bridge across the river.
- The new bridge across the river **is being built** by the construction crew. (1p.)
4. The company awarded him the prestigious engineering award.
- The prestigious engineering award **was awarded** to him by the company. (1p.)

IV. Technical Writing: (6 points)