Exam 3P

Course Title: **Inglés IX**
Term: **25-3**
Instructor: **Marron**
Exam Date: **August 6/7, 2025**

General Instructions: Print your name in the upper right-hand corner of this paper. Read each item carefully. Be sure that you understand exactly what is being asked of you. Begin your answers immediately after the Task 3 questions and add extra sheets of paper as needed. Be sure to write your name on any and all extra sheets of paper.

Do not look at other student's exams. If you have a question or a request during the exam, raise your hand and the instructor will call on you. Do not leave your desk without permission. When you finish please bring your completed exam to the instructor.

This is a **open book** exam. You may consult your homework for help with the exam. Attempt to answer all questions, even if you are uncertain. Whenever possible, provide answers in bullet list format with complete content. Tasks will be evaluated by sub-tasks. Three (3) points are available for each sub-task: Accuracy (1 pt), Completeness (1 pt), and Sufficiency (1 pt). Points will be awarded in 0.1 increments. Answer in English unless requested to do so otherwise.

Task 1 (6 pts)

At present, AI models such as ChatGPT operate as Large Language Models (LLMs) built using transformer architecture from artificial neural networks powered by perceptrons.

1. Why are LLMs called "large language models"?
2. What is a perceptron and how (basically) does it function?
3. What is it that LLMs actually do?

Task 2 (9 pts)

Many see AI playing an evermore important role in document translation, including opening up new opportunities for human translators[1] If true, human translators will need to develop a variety of new skills and be conversant with new concepts and procedures.

1. Access to cloud-based LLM translation is typically done through an Application Programmer Interface (API) using Python. Briefly explain i) the nature of an API, and ii) the nature of Python.
2. Briefly explain the concept of prompt engineering.
3. Metrics for the quality of machine translation are rapidly under development. Two common metrics currently in use are the bilingual evaluation understudy (BLEU) metric and the metric for evaluation of translation with explicit ordering (METEOR). Select one of these metrics and briefly explain how it works.

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[1] Sundberg and Holmstrom (2024). Innovating by prompting: How to facilitate innovation in the age of generative AI, *Business Horizons*, 67 (5)

Task 3 (9 pts)

The report, AI 2027[2] paints a highly dystopian future resulting from, in grand measure, alignment problems and uncontrollable emergent properties that appear in massive AI systems. In their paper, "Four Responsibility Gaps with Artificial Intelligence: Why they Matter and How to Address them." deSio and Mecacci address responsibility and accountability concerns about the large-scale integration of AI systems into human environments, given the assumption that AI systems do not overpower humans[3].

1. Briefly define what is meant by deSio and Mecacci's Moral Accountability Gap?
2. Briefly define what is meant by deSio and Mecacci's Public Accountability Gap?
3. Briefly explain the authors' integrated solution to AI responsibility known as Meaningful Human Control (MHC).

2   AI Futures Project (2025). AI 2027, Accessed at https://ai-2027.com/ on July 23, 2025
3   Filippo Santoni de Sio and Giulio Mecacci (2021). Four Responsibility Gaps with Artificial Intelligence: Why they Matter and How to Address them, *Philosophy & Technology*, 34:1057–1084