Your grade: 97.50%

Your latest: **97.50%** • Your highest: **97.50%** • To pass you need at least 80%. We keep your highest score.

Next item →

1. Which of the following are true in regards to Constitutional AI? Select all that apply. 1 / 1 point

- [x] To obtain revised answers for possible harmful prompts, we need to go through a Critique and Revision process.

  Correct
  This process is necessary for Constitutional AI, and its done by asking the model to critique and revise the elicited harmful answers.

- [x] Red Teaming is the process of eliciting undesirable responses by interacting with a model.

  Correct
  Red Teaming is the process of eliciting undesirable responses, and it is necessary for the first stage of Constitutional AI, as we need to fine-tune the model with those “red team” prompts and revised answers.

- [ ] For constitutional AI, it is necessary to provide human feedback to guide the revisions.

- [x] In Constitutional AI, we train a model to choose between different responses.

Correct
This is the role of the preference model, that will learn what responses are preferred following the constitutional principles.

2. What does the "Proximal" in Proximal Policy Optimization refer to? 1 / 1 point

- ( ) The algorithm's proximity to the optimal policy
- ( ) The use of a proximal gradient descent algorithm
- ( ) The algorithm's ability to handle proximal policies.
- (•) The constraint that limits the distance between the new and old policy

Correct
The "Proximal" in Proximal Policy Optimization refers to the constraint that limits the distance between the new and old policy, which prevents the agent from taking large steps in the policy space that could lead to catastrophic changes in behavior.

3. "You can use an algorithm other than Proximal Policy Optimization to update the model weights during RLHF." 1 / 1 point

Is this true or false?

- (●) True
- ( ) False

Correct
For instance, you can use an algorithm called Q-Learning. PPO is the most popular for RLHF because it balances complexity and performance, but RLHF is an ongoing field of research and this preference may change in the future as new techniques are developed.

4. In reinforcement learning, particularly with the Proximal Policy Optimization (PPO) algorithm, what is the role of KL-Divergence? Select all that apply. 1 / 1 point

- [x] KL divergence is used to enforce a constraint that limits the extent of LLM weight updates.

Correct
PPO used KL divergence to introduce a constraint that limits the changes to the LLM weights to prevent dramatic changes from the original model.

- [ ] KL divergence encourages large updates to the LLM weights to increase differences from the original model.
- [ ] KL divergence is used to train the reward model by scoring the difference of the new completions from the original human-labeled ones.
- [x] KL divergence measures the difference between two probability distributions.

Correct
KL-Divergence is a mathematical measure of the difference between two probability distributions.

5. Fill in the blanks: When fine-tuning a large language model with human feedback, the action that the agent (in this case the LLM) carries out is _____ and the action space is the _____.

1 / 1 point

- (●) Generating the next token, vocabulary of all tokens.
- ( ) Generating the next token, the context window
- ( ) Calculating the probability distribution, the LLM model weights.
- ( ) Processing the prompt, context window.

Correct

The LLM generates tokens based on the text in the context window, and the probability of all tokens in the vocabulary.

6. How does Retrieval Augmented Generation (RAG) enhance generation-based models? 1 / 1 point

- ○ By optimizing model architecture to generate factual completions.
- ○ By applying reinforcement learning techniques to augment completions.
- ◉ By making external knowledge available to the model
- ○ By increasing the training data size.

Correct

The retriever component retrieves relevant information from an external corpus or knowledge base, which is then used by the model to generate more informed and contextually relevant responses. This incorporation of external knowledge enhances the quality and relevance of the generated content.

7. How can incorporating information retrieval techniques improve your LLM application? Select all that apply. 1 / 1 point

- [ ] Faster training speed when compared to traditional models
- [x] Overcome Knowledge Cut-offs

Correct
Retrieving data from external sources enables the model to incorporate information it did not see during training when generating text.

- [ ] Reduced memory footprint for the model
- [x] Improve relevance and accuracy of responses

Correct
By retrieving from curated, verified datasets you can improve the relevance and accuracy of the model's completions.

8. What are correct definitions of Program-aided Language (PAL) models? Select all that apply. 0.75 / 1 point

- [ ] Models that integrate language translation and coding functionalities.
- [ ] Models that assist programmers in writing code through natural language interfaces.
- [x] Models that offload computational tasks to other programs.

Correct
It offloads these tasks to a runtime symbolic interpreter such as a python function, which reduces the workload for the LLM and improves accuracy as symbolic interpreters tend to be more precise with computational tasks.

- [ ] Models that enable automatic translation of programming languages to human languages.

You didn't select all the correct answers

9. Which of the following best describes the primary focus of ReAct? 1 / 1 point

- Studying the separate topics of reasoning and acting in LLMs.
- Enhancing language understanding and decision making in LLMs.
- Exploring action plan generation in LLMs.
- Investigating reasoning abilities in LLMs through chain-of-thought prompting.

Correct
The ReAct framework aims to enhance both language understanding and decision-making capabilities in LLMs by combining reasoning and acting components.

10. What is the main purpose of the LangChain framework? 1 / 1 point

- ○ To provide prompt templates, agents, and memory components for working with LLMs.
- ○ To connect with external APIs and datasets and offload computational tasks.
- ◉ To chain together different components and create advanced use cases around LLMs, such as chatbots, Generative Question-Answering (GQA), a nd summarization.
- ○ To evaluate the LLM's completions and provide fast prototyping and deployment capabilities.

Correct

The LangChain framework is built around LLMs and allows the chaining of various components to create more advanced applications for LLMs. It supports use cases like chatbots, Generative Question-Answering (GQA), and summarization.