**For Section- MB, MK, LQ, MF, HU and HZ**

**Disclaimer: Don't completely rely on these questions check the transcript of every video lecture.**

Cross check with answers as well

Q1. Previous generations of language models made use of an _____architecture?

a) LLM b) LM c)RNN d) None of above

Q2. Question: Which architectural model revolutionized generative algorithms and language understanding, as described in the provided text?

a) Recurrent Neural Networks (RNNs)

b) Attention is All You Need

c) Homonyms

d) Syntactic Ambiguity

Q3. What is one key advantage of the transformer architecture over earlier models like RNNs, as described in the provided text?

a) The ability to process only adjacent words in a sentence.

b) Increased computational complexity.

c) Enhanced capability to learn the relevance and context of all words in a sentence.

d) Limited regenerative capability.

Q4. What is the term used to describe the mechanism in the transformer architecture that allows the model to learn the relevance of each word to every other word in the input?

a) Attention weights

b) Self-attention

c) Encoder

d) Decoder

Q5. What is the purpose of the embedding layer in the transformer architecture, as described in the provided text?

a) To convert input into numbers for processing.

b) To compress input data.

c) To generate token IDs.

d) To represent tokens as vectors in a high-dimensional space.

Q6. What purpose does adding positional encoding serve in the transformer architecture, as described in the provided text?

a) It preserves the information about the word order in the input sequence.

b) It compresses the input tokens for more efficient processing.

c) It removes irrelevant tokens from the input sequence.

d) It adjusts the token vectors to match the desired vector size

Q7. What does the term "multi-headed self-attention" refer to in the context of the transformer architecture?

a) It allows the model to attend to different parts of the input sequence.

b) It enables parallel learning of multiple sets of self-attention weights.

c) It adjusts the model's parameters during training.

d) It improves the model's ability to generate diverse outputs.

Q8. Which type of transformer model is primarily used for sequence-to-sequence tasks such as translation, where the input sequence and the output sequence can be of different lengths?

a) Encoder-only models

b) Encoder-decoder models

c) Decoder-only models

d) GPT family of models

Q9. Which type of transformer model is primarily used for sequence-to-sequence tasks such as translation, where the input sequence and the output sequence can be of different lengths?

a) Encoder-only models

b) Encoder-decoder models

c) Decoder-only models

d) GPT family of models

Q10. What is the main goal of the overview of transformer models provided in the text?

a) To teach prompt engineering techniques

b) To explain the underlying architecture of transformer models

c) To enable readers to understand the differences between various transformer models

d) To provide details for coding transformer models

Q11. What is the first step in the generative AI project life cycle described in the text?

a) Assessing model performance

b) Defining the scope of the project

c) Deploying the model into infrastructure

d) Training the model from scratch

Q12. What is the main objective of the initial training process for Large Language Models (LLMs), often referred to as pre-training?

a) To fine-tune the model weights for specific tasks

b) To minimize the loss of the training objective

c) To generate embeddings or vector representations for tokens

d) To internalize the patterns and structures present in language

Q13. How are tokens in the input sequence handled during pre-training of encoder-only models, also known as Autoencoding models?

a) Tokens are shuffled randomly

b) Tokens are masked randomly

c) Tokens are replaced with synonyms

d) Tokens are deleted randomly

Q14. Which type of model architecture is pre-trained using causal language modeling, predicting the next token based on the previous sequence of tokens?

a) Encoder-only models

b) Decoder-only models

c) Sequence-to-sequence models

d) Autoencoding models

Q15. Which type of model architecture is often used for translation, summarization, and question-answering, and utilizes both the encoder and decoder parts of the original transformer architecture?

a) Encoder-only models

b) Decoder-only models

c) Sequence-to-sequence models

d) Autoencoding models

Q16. What is one of the most common issues encountered when trying to train large language models?

a) Hardware compatibility issues

b) Loss of model accuracy

c) Running out of memory

d) Insufficient training data

Q17. What options are available to reduce the memory required for training large language models?

a) Decreasing the size of the model parameters

b) Increasing the number of GPUs used for training

c) Optimizing the training process to minimize memory usage

d) Using specialized hardware with larger memory capacity

Q18. What technique can be used to reduce the memory required for training large language models?

a) Scaling up the hardware infrastructure

b) Quantization

c) Adding more parameters to the model

d) Using larger batch sizes

Q19. What technique can further reduce the memory footprint after applying 16-bit half precision quantization?

a) Increasing the number of GPUs

b) Decreasing the model size

c) Using eight-bit integers for model parameters

d) Employing distributed computing techniques

Q20. What technique is used to distribute large datasets across multiple GPUs and process batches of data in parallel?

a) Model replication

b) Gradient accumulation

c) Distributed data-parallel (DDP)

d) Modal sharding

Q21. What technique is used to distribute model parameters, gradients, and optimizer states across GPUs, reducing redundancy and memory consumption?

a) Model replication

b) Gradient accumulation

c) Distributed data-parallel (DDP)

d) ZeRO (Zero Redundancy Optimization)

Q22. What factor can be adjusted in FSDP to manage the trade-off between performance and memory utilization?

a) Sharding factor

b) Replication factor

c) Teraflop factor

d) Hyper sharding factor

Q23. What is one advantage of FSDP over DDP when training large language models?

a) FSDP requires less memory per GPU.

b) FSDP provides higher per-GPU teraflops when using 32-bit precision.

c) FSDP allows for faster communication between GPUs.

d) FSDP is limited to smaller model sizes compared to DDP.

Q24. What is a petaFLOP per second day used to quantify?

a) The number of parameters in a model

b) The size of the dataset used for training

c) The compute resources required for training

d) The performance achieved by a model

Q25. In which situation might it be necessary to pretrain your own language model from scratch?

a) When your application requires commonly used vocabulary and language structures

b) When your target domain involves highly specialized language not covered in existing language models

c) When you want to build a prototype quickly without training a model

d) When your target domain is similar to everyday language and doesn't require specialized terms

Q26. What factor influenced the smaller-than-optimal training dataset for the BloombergGPT model?

a) Limited availability of financial domain data

b) Lack of computational resources

c) Model architecture constraints

d) Insufficient pretraining techniques

Q27. What is emphasized as a challenge when using existing LLMs in specialized domains like law or medicine?

a) Limited computational resources

b) Lack of pretraining techniques

c) Difficulty understanding domain-specific terms and language structures

d) Inefficient model architectures

Q28. Which aspect of model development did the discussion on scaling laws focus on?

a) Model training time

b) Data preprocessing techniques

c) Model size, training data, and compute budget relationships

d) Model inference speed

Q29. Interacting with Large Language Models (LLMs) differs from traditional machine learning models. Working with LLMs involves natural language input, known as a _____, resulting in output from the Large Language Model, known as the _____ .

a) prompt, fine-tuned LLM

b)tunable request, completion

c)prompt, completion

d) prediction request, prediction response

Q30. Large Language Models (LLMs) are capable of performing multiple tasks supporting a variety of use cases. Which of the following tasks supports the use case of converting code comments into executable code?

a)Invoke actions from text

b)Text summarization

c)Information Retrieval

d)Translation

Q31. What is the primary drawback of using one-shot or few-shot inference strategies for smaller language models?

a) It requires excessive memory resources.

b) It often fails to work even with multiple examples.

c) It reduces the overall context window.

d) It increases the likelihood of overfitting.

Q32. What process involves updating the weights of a pre-trained language model using a dataset of labeled examples?

a) Instruction generation

b) Self-supervised learning

c) Pre-training

d) Fine-tuning

Q33. Which strategy is particularly effective at improving a language model's performance on various tasks?

a) Full fine-tuning

b) Few-shot learning

c) Instruction fine-tuning

d) Self-supervised learning

Q34. How is the completion generated by the language model compared to the expected response during fine-tuning?

a) By calculating the cosine similarity

b) By comparing the semantic meaning

c) By using the standard cross-entropy function

d) By measuring the perplexity score

Q35. What is the purpose of dividing the dataset into training, validation, and test splits during the fine-tuning process?

a) To reduce overfitting

b) To increase the model's capacity

c) To improve generalization

d) To evaluate the model's performance

Q36. What is the resulting version of the base model after the fine-tuning process called?

a) Enhanced model

b) Augmented model

c) Instruct model

d) Specialized model

Q37. What is the most common method used for fine-tuning large language models?

a) Semi-supervised learning

b) Reinforcement learning

c) Few-shot learning

d) Instruction fine-tuning

Q38. What is used to measure the LLM's performance during the validation and testing phases of fine-tuning?

a) F1-score

b) Perplexity

c) Cross-entropy loss

d) Bleu score

Q39. Which step of the fine-tuning process involves updating the model weights based on the calculated loss?

a) Training

b) Validation

c) Testing

d) Initialization

Q40. What type of data do you use to train an LLM through instruction fine-tuning?

a) Unstructured text

b) Labeled examples of prompt completions

c) Natural language queries

d) Pre-trained embeddings

Q41. What is a potential downside to fine-tuning a pre-trained language model on a single task?

a) It requires a large amount of training data.

b) It may lead to overfitting on the fine-tuning task.

c) It can result in catastrophic forgetting, degrading performance on other tasks.

d) It often requires retraining the entire model from scratch.

Q42. What is one drawback of multitask fine-tuning?

a) It requires a small amount of training data.

b) It leads to catastrophic forgetting.

c) It results in models specialized for only one task.

d) It requires fine-tuning on a single task at a time.

Q43. What is the primary purpose of fine-tuning the FLAN-T5 model using the dialogsum dataset?

a) To improve the model's ability to summarize everyday conversations.

b) To train the model on a variety of tasks simultaneously.

c) To generalize the model's capabilities across different domains.

d) To enhance the model's ability to summarize support chat conversations.

Q44. What was the outcome of fine-tuning the FLAN-T5 model using the dialogsum dataset?

a) The model improved its ability to summarize everyday conversations.

b) The model was able to generalize its capabilities across different domains.

c) The model generated summaries with fabricated information.

d) The model produced summaries closer to the human-generated baseline, including all important details.

Q45. What is the primary purpose of the SAMSum dataset?

a) To train language models for machine translation

b) To fine-tune language models for dialogue summarization

c) To evaluate the performance of language models in text classification

d) To develop language models for sentiment analysis

Q46. Which evaluation metric is primarily used to assess the quality of automatically generated summaries?

a) BLEU

b) Accuracy

c) ROUGE

d) F1 Score

Q47. What is the main advantage of using ROUGE and BLEU metrics for evaluating language models?

a) They are easy to compute and interpret.

b) They provide comprehensive insights into the model's performance.

c) They can be used for both deterministic and non-deterministic models.

d) They are robust against variations in language structure.

Q48. Which of the following is NOT a potential limitation of using simple ROUGE scores?

a) They may not fully capture the quality of generated output.

b) They can be influenced by factors like repeated words or different word order.

c) They are computationally expensive to calculate.

d) They may yield high scores for poor-quality completions.

What does RLHF stand for in the context of fine-tuning large language models?

a) Reinforcement Learning Framework

b) Reinforcement Learning for Human Feedback

c) **Reinforcement Learning from Human Feedback**

d) Reinforcement Learning for High Fidelity

What is the primary goal of using RLHF in fine-tuning language models?

a) Maximizing model complexity

**b) Aligning model outputs with human preferences**

c) Reducing computational resources

d) Increasing training data volume

How does RLHF help minimize potential harm in model outputs?

a) By optimizing for efficiency

**b) By avoiding toxic language and sensitive topics**

c) By increasing model complexity

d) By ignoring human feedback

What technique is used to adjust the model's parameters iteratively in RLHF?

a) Supervised learning

b) Unsupervised learning

**c) Reinforcement learning**

d) Transfer learning

What is the primary objective of using the reward model in the reinforcement learning process?

a) To generate completions for the LLM

b) To evaluate the human feedback on the model's completions

c) To update the LLM weights based on human preferences

d) To generate a dataset of prompt-completion pairs

How is the reward value determined by the reward model?

a) Based on the complexity of the completion

b) Based on the similarity of the completion to the prompt

c) Based on the human feedback received during training

d) Based on the length of the completion

What is the role of the reinforcement learning algorithm in the RLHF process?

a) To generate completions for the LLM

b) To evaluate the human feedback on the model's completions

c) To update the reward model weights based on human preferences

d) To update the LLM weights based on the reward values received from the reward model

What is the stopping criteria mentioned for the RLHF process?

a) Reaching a threshold value for the complexity of completions

b) Reaching a maximum number of steps for the reinforcement learning algorithm

c) Reaching a threshold value for the similarity of completions to human preferences

d) Reaching a maximum number of epochs for the training process

Which reinforcement learning algorithm is mentioned as a popular choice for the RLHF process?

a) Deep Q-Network (DQN)

b) Policy Gradient Methods

c) Proximal Policy Optimization (PPO)

d) Monte Carlo Tree Search (MCTS)

Answers:

c) To update the LLM weights based on human preferences

c) Based on the human feedback received during training

d) To update the LLM weights based on the reward values received from the reward model

b) Reaching a maximum number of steps for the reinforcement learning algorithm

c) Proximal Policy Optimization (PPO)

Here are some multiple-choice questions based on the provided transcript:

1. What is the first step in fine-tuning an LLM with RLHF?
   a) Collecting human feedback on model completions
   b) Selecting a model and generating completions for prompts
   c) Training the reward model
   d) Structuring the human labelers' instructions

2. What is the purpose of the prompt dataset in RLHF?
   a) To provide examples of human-generated summaries

b) To evaluate the performance of the LLM

c) To generate completions for the LLM

d) To collect feedback from human labelers on LLM completions

Based on the provided transcript, here's a multiple-choice question:

What is the role of the reward model in the RLHF process?

a) To rank completions based on human preferences

b) To provide feedback to labelers on completion quality

c) To automatically choose the preferred completion during RLHF

d) To learn from human assessments and classify completions as positive or negative

Answer:

d) To learn from human assessments and classify completions as positive or negative

3. Why is it important to assign the same prompt completion sets to multiple human labelers?

a) To increase the number of completions generated for each prompt

b) To ensure diversity in the responses provided by labelers

c) To establish consensus and minimize the impact of individual labelers

d) To speed up the process of collecting human feedback

4. What is the purpose of converting ranking data into pairwise comparisons of completions?

a) To increase the number of possible completions for each prompt

b) To simplify the training process for the reward model

c) To provide additional context for each completion

d) To standardize the format of data for training the reward model

5. Which feedback method provides more prompt-completion data to train the reward model?

a) Thumbs-up, thumbs-down feedback

b) Ranking feedback

c) Numeric rating feedback

d) Yes or no feedback

Answers:

1. b) Selecting a model and generating completions for prompts
2. d) To collect feedback from human labelers on LLM completions
3. c) To establish consensus and minimize the impact of individual labelers
4. d) To standardize the format of data for training the reward model
5. b) Ranking feedback

What does PPO stand for in the context of reinforcement learning?

a) Proximal Policy Orientation

b) Policy Preference Optimization

c) Proximal Policy Optimization

d) Policy Performance Optimization

Based on the provided conversation, here's a multiple-choice question:

What is the role of the entropy loss in the PPO reinforcement learning algorithm?

a) It updates the model weights through back propagation.

b) It ensures that the model updates remain within a trust region.

c) It guides the model towards more creativity during training.

d) It estimates the expected total reward for a given state.

Answer:

It guides the model towards more creativity during training.

Sure, here are some multiple-choice questions related to the topic discussed:

1. What does RLHF stand for in the context of fine-tuning language models?

a) Reinforcement Learning with High Fidelity

b) Reinforcement Learning with Human Feedback

c) Reinforcement Language Hacking Framework

d) Real-time Language Feedback Hub

**Answer: b) Reinforcement Learning with Human Feedback**

2. What is a potential problem in reinforcement learning known as "reward hacking"?

a) Exploiting the reward system to maximize undesired outcomes

b) Generating rewards for completing tasks without human input

c) Creating models that can imitate human behavior perfectly

d) Hacking into reward systems to increase model performance

**Answer: a) Exploiting the reward system to maximize undesired outcomes**

3. How does KL divergence contribute to mitigating reward hacking in RLHF?

a) It maximizes the reward for completing tasks

b) It penalizes the model for deviating too much from a reference model

c) It ensures the model always selects the highest reward action

d) It minimizes the difference between expected and actual rewards

**Answer: b) It penalizes the model for deviating too much from a reference model**

4. What is the purpose of using a reference model in RLHF?

a) To generate new prompts for reinforcement learning

b) To freeze the model weights during training iterations

c) To compare the performance of different reinforcement learning algorithms

d) To serve as a benchmark for the model's alignment and prevent reward hacking

**Answer: d) To serve as a benchmark for the model's alignment and prevent reward hacking**

5. Which technique is commonly used to update the weights of the model in RLHF to align it with human preferences?

a) Proximal Policy Optimization (PPO)

b) Q-learning

c) Supervised Learning

d) Genetic Algorithms

**Answer: a) Proximal Policy Optimization (PPO)**

These questions cover key concepts discussed in the text and can be used to assess understanding of RLHF and related techniques.

This passage discusses the concept of Constitutional AI and its application in scaling human feedback for model training. Here are some multiple-choice questions based on the text:

1. What is one of the primary challenges associated with using human evaluation in reinforcement learning fine-tuning (RLHF)?

a) Inconsistency in human evaluations

b) Lack of trained models for evaluation

c) Limited computational resources

d) Difficulty in collecting labeled data

**Answer: a) Inconsistency in human evaluations**

2. What is Constitutional AI primarily aimed at achieving?

a) Reducing the need for human evaluation in model training

b) Enhancing the computational efficiency of reinforcement learning algorithms

c) Generating large-scale labeled datasets for model fine-tuning

d) Enabling models to critique and revise their responses based on predefined principles

**Answer: d) Enabling models to critique and revise their responses based on predefined principles**

3. In the context of Constitutional AI, what is the purpose of "red teaming"?

a) Training the model to generate harmful responses

b) Evaluating the performance of the reinforcement learning algorithm

c) Generating feedback from human labelers

d) Assessing the alignment of the model with human preferences

**Answer: a) Training the model to generate harmful responses**

4. How does Constitutional AI address the issue of harmful or illegal content in model responses?

a) By ignoring such responses during training

b) By fine-tuning the model using reinforcement learning

c) By providing predefined constitutional principles for model guidance

d) By outsourcing model evaluation to human labelers

**Answer: c) By providing predefined constitutional principles for model guidance**

5. What is the second phase of the Constitutional AI training process referred to as?

a) Human Feedback Loop

b) Reinforcement Learning with Human Feedback (RLHF)

c) Reinforcement Learning from AI Feedback (RLAIF)

d) Self-Supervised Learning

**Answer: c) Reinforcement Learning from AI Feedback (RLAIF)**

These questions cover key concepts discussed in the passage and can be used to assess understanding of Constitutional AI and its application in model training.

Based on the provided passage, here are some multiple-choice questions:

1. What are some of the primary challenges associated with deploying large language models (LLMs) for inference?

a) Lack of trained models for inference

b) High computational and storage requirements

c) Inability to connect to external data sources

d) Limited access to compute resources

**Answer: b) High computational and storage requirements**

2. Which technique aims to reduce the size of the LLM while maintaining its performance for inference?

a) Data augmentation

b) Model distillation

c) Feature engineering

d) Gradient boosting

**Answer: b) Model distillation**

3. What is the purpose of post-training quantization (PTQ) in model optimization?

a) To increase the size of the model

b) To reduce the model's computational efficiency

c) To transform the model's weights to a lower precision representation

d) To improve the model's training time

**Answer: c) To transform the model's weights to a lower precision representation**

4. What is the goal of pruning in model optimization?

a) To increase the number of parameters in the model

b) To eliminate weights that do not contribute significantly to overall model performance

c) To increase the size of the model

d) To introduce noise into the model

**Answer: b) To eliminate weights that do not contribute significantly to overall model performance**

5. Which technique involves training a smaller student model to mimic the behavior of a larger teacher model?

a) Model pruning

b) Post-training quantization

c) Model distillation

d) Gradient descent

**Answer: c) Model distillation**

These questions cover key concepts discussed in the passage and can help assess understanding of model optimization techniques for deploying large language models for inference.

What is the most complex stage in the generative AI project life cycle, according to the video?

a) Prompt engineering

b) Fine-tuning

c) Pre-training a large language model

d) Optimization techniques

Answer: c) Pre-training a large language model

Based on the provided transcript, here is a multiple-choice question:

What is the purpose of Retrieval Augmented Generation (RAG) framework?

a) To fine-tune large language models with external data sources.

b) To enable large language models to generate completions without external data.

c) To provide large language models access to external data sources at inference time.

d) To optimize the performance of large language models by reducing the size of the model.

**Answer: c) To provide large language models access to external data sources at inference time.**

This question assesses understanding of the purpose and functionality of the Retrieval Augmented Generation (RAG) framework as described in the video transcript.

Based on the provided text, here's a multiple-choice question:

What is one of the key considerations when connecting large language models (LLMs) to external applications?

a) Ensuring the LLMs can generate completions without any external data.

b) Determining the order of steps required to complete a task.

c) Writing complex Python scripts to interact with the external applications.

d) Providing the LLMs with instructions to trigger actions and formatting the completions in a way that the application can understand.

**Answer: d) Providing the LLMs with instructions to trigger actions and formatting the completions in a way that the application can understand.**

This question assesses understanding of the key considerations when integrating LLMs with external applications as described in the provided text.

Based on the provided text, here's a multiple-choice question:

What strategy has demonstrated some success in improving the performance of large language models (LLMs) on reasoning tasks?

a) Reducing the size of the model through distillation.

b) Using reinforcement learning from human feedback.

c) Prompting the model to think more like a human by breaking the problem down into steps.

d) Fine-tuning the model using reinforcement learning.

**Answer: c) Prompting the model to think more like a human by breaking the problem down into steps.**

This question assesses understanding of the strategy described in the text for improving the performance of LLMs on reasoning tasks.

Based on the provided text, here's a multiple-choice question:

What framework enables large language models (LLMs) to interact with external code interpreters to carry out calculations?

a) Reinforcement Learning from Human Feedback (RLHF)

b) Chain of Thought Prompting (CTP)

c) Program-Aided Language Models (PAL)

d) Retrieval Augmented Generation (RAG)

**Answer: c) Program-Aided Language Models (PAL)**

This question assesses understanding of the framework described in the text for enabling LLMs to interact with external code interpreters to perform calculations.

Of course! Here are a couple more questions based on the provided text:

1. What is the strategy behind the PAL framework to improve the performance of LLMs on reasoning tasks?

a) Providing additional training data

b) Prompting the model to think more like a human by breaking the problem down into steps

c) Increasing the model size

d) Reducing the vocabulary size

**Answer: b) Prompting the model to think more like a human by breaking the problem down into steps**

2. What is the role of the orchestrator in the PAL framework?

a) Writing Python scripts based on reasoning steps

b) Managing the flow of information and initiating calls to external data sources or applications

c) Executing Python code generated by the LLM

d) Training the LLM to understand Python syntax

**Answer: b) Managing the flow of information and initiating calls to external data sources or applications**

Certainly! Here's a question based on the provided text:

What is ReAct, and how does it combine reasoning and action planning in the context of large language models?

a) ReAct is a programming language designed to enhance the capabilities of large language models by enabling them to execute complex mathematical operations.

b) ReAct is a framework developed by researchers at Princeton and Google that combines chain of thought reasoning with action planning. It uses structured examples to guide large language models through multi-step tasks, allowing them to interact with external data sources and applications to find solutions.

c) ReAct is a dataset containing examples of complex problem-solving tasks that large language models can use to improve their reasoning abilities.

d) ReAct is an algorithm that enhances the accuracy of large language models by filtering out irrelevant information from their training data.

**Answer: b) ReAct is a framework developed by researchers at Princeton and Google that combines chain of thought reasoning with action planning. It uses structured examples to guide large language models through multi-step tasks, allowing them to interact with external data sources and applications to find solutions.**

Of course! Here are two more multiple-choice questions based on the provided text:

1. What are the three allowed actions in the ReAct framework?

a) Search, find, solve

b) Look, retrieve, finish

c) Search, lookup, finish

d) Query, fetch, complete

**Answer: c) Search, lookup, finish**

2. How does LangChain facilitate the development of applications powered by language models?

a) By providing a comprehensive framework that includes pre-built components for formatting input examples and model completions, as well as tools for interacting with external datasets and APIs.

b) By offering a simple text editor for developers to manually code interactions between large language models and external applications.

c) By providing a platform for collaborative development of language models and applications in a cloud-based environment.

d) By automating the entire development process, requiring no input or involvement from developers.

**Answer: a) By providing a comprehensive framework that includes pre-built components for formatting input examples and model completions, as well as tools for interacting with external datasets and APIs.**

Of course! Here are a couple more multiple-choice questions:

1. Which technique was discussed in the lesson as a way to help LLMs reason through problems by breaking them down into steps?

a) Reinforcement learning with human feedback (RLHF)

b) Chain of thought prompting

c) Program-aided language models (PAL)

d) ReAct framework

**Answer: b) Chain of thought prompting**

2. Which layer of the architecture stack typically includes the user interface and security components in LLM-powered applications?

a) Infrastructure layer

b) Model layer

c) Output layer

d) Interface layer

**Answer: d) Interface layer**

Which framework combines chain of thought reasoning with action planning to help LLMs reason through problems and decide on actions to take?

a) Reinforcement learning with human feedback (RLHF)

b) Program-aided language models (PAL)

c) ReAct framework

d) LangChain

Based on the provided video transcript, here's a multiple-choice question:

4. What does Amazon SageMaker JumpStart provide to users?

a) Access to AWS console and Sagemaker studio

b) Infrastructure, LLM models, tools, frameworks, and API for deploying models

c) Access to GPU resources for fine-tuning and deploying models

d) End-to-end solutions across different use cases and foundation models for deployment and fine-tuning

**Answer: d) End-to-end solutions across different use cases and foundation models for deployment and fine-tuning**