**Generative AI Leader Sample Questions**

Q1:

A company is evaluating the use of large language models (LLMs) to enhance its operations and customer interactions. What is a primary characteristic of LLMs?

1. LLMs excel in highly specific technical tasks requiring deep, singular domain expertise.
2. LLMs learn and generalize effectively from small datasets for niche applications.
3. LLMs have strong inherent logical reasoning and problem-solving abilities without extra prompting.
4. LLMs are trained on vast datasets, enabling broad language and context understanding, and adaptability across many tasks.

**Correct answer**

LLMs are trained on vast datasets, enabling broad language and context understanding, and adaptability across many tasks.

**Feedback**

* *A is incorrect because, while LLMs can be applied to specific tasks, their core strength lies in their general language understanding derived from broad training, enabling them to handle a variety of applications rather than being limited to highly specialized areas.*
* *B is incorrect because LLMs are known for requiring vast amounts of data for effective training to achieve their broad capabilities. They are not typically effective with limited datasets without fine-tuning on more specific data.*
* *C is incorrect because, while LLMs can exhibit reasoning capabilities, this often requires effective prompt engineering or advanced techniques like chain-of-thought prompting. They do not inherently possess strong logical reasoning without guidance. Additionally, limitations such as "hallucinations," indicating they are not flawless problem-solvers.*
* *D is correct because foundation models, including LLMs, are trained on massive amounts of diverse data (text, images, and code). This broad training allows them to develop a deep understanding of the data and be adapted to many different tasks. The flexibility of foundation models, including LLMs, to support a wide range of use cases stems directly from this training on diverse data.*

Q2:

An AI robot learns optimal package delivery routes in a city. It receives positive scores for fast, successful deliveries and negative scores for delays or failures. Through this feedback, the robot improves its navigation over time. What type of machine learning is being used to train the robot?

1. Supervised learning
2. Deep learning
3. Unsupervised learning
4. Reinforcement learning

**Correct answer**

Reinforcement learning

**Feedback**

* *A is incorrect because supervised learning requires labeled data, where each input is paired with a correct output. This scenario does not involve pre-labeled optimal routes; the robot learns through trial and error.*
* *B is incorrect because, while deep learning can be a component of reinforcement learning, it is not the overarching learning paradigm described. Deep learning refers to neural networks with multiple layers. Deep learning can be used to implement the function that learns the optimal policy in reinforcement learning. However, the learning process itself is defined by the reward and penalty mechanism.*
* *C is incorrect because unsupervised learning focuses on finding patterns in unlabeled data without specific goals or feedback. The robot's learning is goal-oriented (optimizing delivery routes) and driven by the feedback it receives.*
* *D is correct because the robot learns through interaction with its environment and by receiving rewards (positive scores) and penalties (negative scores) for its actions. That is the fundamental process of reinforcement learning. Reinforcement learning is all about learning through interaction and feedback, where an algorithm learns to maximize rewards and minimize penalties by interacting with its environment.*

Q3:

An advertising agency needs to quickly generate many photorealistic images from text for client campaigns because traditional photoshoots are slow and costly. They want to rapidly create high-quality visuals from text and reduce expenses. Which Google foundation model should they use?

1. Gemini
2. Gemma
3. Veo
4. Imagen

**Correct answer**

Imagen

**Feedback**

* *A is incorrect because, while Gemini is a multimodal model capable of understanding images and text, its primary strength for this specific scenario isn't solely focused on generating high-quality images from text as Imagen is.*
* *B is incorrect because Gemma is a family of lightweight, open models built upon the research behind Gemini, but it is not specifically highlighted as the primary Google model for high-quality text-to-image generation.*
* *C is incorrect because Veo is a model designed for generating video content from text or still images, not primarily for creating still photorealistic images from text descriptions.*
* *D is correct because Imagen is a powerful text-to-image diffusion model that excels at generating high-quality images from textual descriptions. This directly addresses the agency's need to create photorealistic images from text prompts.*

Q4:

A company is planning to integrate generative AI into its operations but is wary of becoming dependent on a single technology provider. They prioritize the ability to choose and integrate different AI tools and platforms as their needs evolve. Which inherent characteristic of Google Cloud would address this concern?

1. Google Cloud's emphasis on an open approach within its AI offerings.
2. Google Cloud's commitment to tightly integrated, proprietary AI solutions
3. Google Cloud's strategy prioritizing fully managed AI services that simplify the user experience
4. Google Cloud's primary focus on automating AI workflows

**Correct answer**

Google Cloud's emphasis on an open approach within its AI offerings.

**Feedback**

* *A is correct because Google Cloud has an open approach and recognize the benefits of Google Cloud's open approach. This openness implies support for customer choice across different offerings. This directly mitigates concerns about vendor lock-in and promotes flexibility in their technology stack. Open standards allow users to move services between vendors more easily.*
* *B is incorrect because a strict adherence to proprietary technologies would exacerbate concerns about vendor lock-in, directly contradicting the company's priority for flexibility.*
* *C is incorrect because, while fully managed services offer convenience, they can potentially limit user control and choice. This would not align with the company's desire for flexibility and avoiding vendor lock-in.*
* *D is incorrect because, while automation can streamline workflows, it doesn't inherently address the concern of vendor lock-in. The company's priority is maintaining flexibility and choice among different AI technologies.*

Q5:

A consulting research team needs to analyze multiple lengthy reports and documents to find key trends and make client recommendations. They require a method to quickly understand each document's core findings, link information across sources, and efficiently organize insights for their report. Manual methods are too slow and complex. Which Google Cloud offering should they use?

1. NotebookLM
2. Gemini app
3. Vertex AI Search
4. Gemini for Google Workspace

**Correct answer**

NotebookLM

**Feedback**

* *A is correct because NotebookLM is specifically designed as an AI-first notebook grounded in user-provided documents to help users gain insights faster. It allows users to upload multiple documents, ask questions about the content, request summaries, and save key insights as notes. This directly addresses the research team's need to analyze several documents, understand their findings, identify connections, and organize information efficiently. NotebookLM's focus on source-based answers ensures accuracy and the ability to trace back to the original information.*
* *B is incorrect. The Gemini app is Google’s generative AI chatbot that can help with writing, planning, learning, and more. However, it is not specifically designed for the in-depth analysis and organization of insights from a specific set of uploaded research documents in the way NotebookLM is.*
* *C is incorrect because Vertex AI Search is designed for building search applications over structured and unstructured data. While it can help find information within documents, it does not offer the focused Q&A, summarization, and note-taking capabilities of NotebookLM for a specific research task.*
* *D is incorrect because Gemini for Google Workspace integrates generative AI into productivity tools like Docs and Drive. While helpful for individual document-level tasks, it does not provide the dedicated, multi-document analysis and insight organization features of NotebookLM for a research project involving multiple complex documents.*

Q6:

A tech company has separate teams using different tools for their machine learning projects, causing duplicated work and scaling issues. They need a central platform to manage all their AI development, deployment, and monitoring efficiently. Which Google Cloud offering should they use?

1. Cloud Functions
2. Vertex AI
3. Google Agentspace
4. BigQuery

**Correct answer**

Vertex AI

**Feedback**

* *A is incorrect because Cloud Functions is a serverless execution environment for running event-driven code. While Cloud Functions can be a component in an AI workflow, it does not provide a central platform to manage the entire machine learning lifecycle across teams.*
* *B is correct because Vertex AI is Google Cloud's unified ML platform designed to streamline the entire ML workflow. Vertex AI offers the infrastructure, tools, and pre-trained models needed for the centralized building, deployment, and management of ML and generative AI solutions. Vertex AI encompasses data preparation, model training, evaluation, deployment, and monitoring, facilitating collaboration and efficient resource use for diverse AI initiatives.*
* *C is incorrect because Google Agentspace is designed to help teams use their company's information more effectively by creating customized AI agents for information access and task automation. While it can leverage ML models, it is not the primary platform for end-to-end ML project management.*
* *D is incorrect because BigQuery is a fully managed and serverless data warehouse optimized for scalable data analysis. It is crucial for storing and analyzing large datasets used in machine learning and integrable with Vertex AI. However, it doesn't offer the comprehensive platform for managing the complete ML development, deployment, and monitoring process that Vertex AI does.*

Q7:

A software company's AI chatbot struggles to answer customer questions about recently released features because this information is not in its original training data. Customers are getting inaccurate answers, increasing support agent workload. The company wants the chatbot to use the latest product documentation to give accurate, up-to-date responses without retraining the entire model. Which technique should they use?

1. Fine-tuning
2. Prompt engineering
3. Retrieval-augmented generation (RAG)
4. Human-in-the-loop (HITL)

**Correct answer**

Retrieval-augmented generation (RAG)

**Feedback**

* *A is incorrect because fine-tuning requires retraining the model on new data, which is more time-consuming than immediately accessing existing documentation with RAG.*
* *B is incorrect because prompt engineering alone cannot provide information the model doesn't already have in its training data. The new feature details are likely outside this knowledge base. However, prompt engineering can be used within a RAG system.*
* *C is correct because retrieval-augmented generation (RAG) allows the language model to retrieve relevant information from external sources, like the latest product documentation, and use it to generate more accurate and contextually appropriate responses, directly addressing the chatbot's knowledge gap about new features without full retraining.*
* *D is incorrect because human-in-the-Loop (HITL) involves human intervention and doesn't proactively enable the chatbot to answer questions about new information automatically as RAG does.*

Q8:

A business analyst asks a generative AI model about the quarterly revenue of a small startup that recently entered the market. The model confidently provides a specific revenue figure and even mentions a supposed press release detailing the company's success. However, after further investigation, the analyst discovers that the startup has not yet released any financial reports, and no such press release exists. The information provided by the AI model is entirely fabricated despite sounding plausible. Which type of large language model limitation does this exemplify?

1. Bias
2. Knowledge cutoff
3. Data dependency
4. Hallucinations

**Correct answer**

Hallucinations

**Feedback**

* *A is incorrect because bias refers to the model's tendency to produce outputs that reflect imbalances or prejudices present in its training data, not necessarily the fabrication of entirely new information.*
* *B is incorrect because knowledge cutoff refers to the point in time after which the model has not been trained on new information. While this can lead to an inability to answer questions about recent events, in this scenario, the model is generating non-existent information rather than stating it doesn't know or providing outdated information.*
* *C is incorrect because data dependency highlights that the performance of foundation models relies heavily on the quality and completeness of their training data. While a lack of specific data might lead to an inability to answer, hallucinations involve generating factually incorrect or nonsensical responses, even if the model believes it has the information.*
* *D is correct because hallucinations occur when foundation models produce outputs that are not accurate or based on real information. In this scenario, the AI model fabricates revenue data and a press release that does not exist, which is a clear example of a hallucination. The model cannot verify information against external sources and may generate convincing but incorrect responses.*

Q9:

A generative AI tool that answers employee policy questions is providing outdated and inaccurate information, causing confusion. The company wants the tool to give reliable answers based on the latest official documents. What should the organization do?

1. Fine-tune the underlying language model with a broader dataset of general knowledge.
2. Increase the temperature setting of the language model.
3. Implement grounding techniques.
4. Reduce the token count parameter.

**Correct answer**

Implement grounding techniques.

**Feedback**

* *A is incorrect because fine-tuning with a broader general knowledge dataset would not necessarily ensure the AI adheres to the company's specific and latest internal policies.*
* *B is incorrect because increasing the temperature parameter would likely increase inaccurate responses .*
* *C is correct because grounding connects the AI's output to verifiable information sources, such as internal documents, improving accuracy and reliability. Retrieval-augmented generation (RAG) is a specific grounding method that retrieves relevant information before generating a response.*
* *D is incorrect because reducing the token count only affects the length of the responses, not their accuracy.*

Q10:

A sales team wants to create dynamic and personalized video pitches for potential clients. They receive client information in various formats and need an AI model that can transform this information into engaging video content tailored to each client's specific needs and challenges. Which Google model should they use?

1. Gemma
2. Gemini
3. Imagen
4. Veo

**Correct answer**

Veo

**Feedback**

* *A is incorrect because Gemma is a family of lightweight, open models primarily focused on developer-friendly and customizable solutions. While versatile, its core strength isn't video generation for sales pitches.*
* *B is incorrect because Gemini is a multimodal model capable of understanding and operating across diverse data formats like text, images, and audio for various tasks. However, its primary function is not specifically video content creation for sales.*
* *C is incorrect because Imagen specializes in generating high-quality images from textual descriptions, which does not directly address the team's need for video pitch creation.*
* *D is correct because Veo is a model capable of generating video content from text or still images. This directly addresses the sales team's need to transform client information into engaging and personalized video pitches.*

Q11:

What is reinforcement learning?

1. Learning from labeled data with correct output pairs.
2. Learning by identifying patterns in unlabeled data.
3. Learning through interaction and feedback.
4. Learning by training on vast data to generate new content.

**Correct answer**

Learning through interaction and feedback.

**Feedback**

* *A is incorrect because this definition describes supervised learning.*
* *B is incorrect because this definition describes unsupervised learning.*
* *C is correct because reinforcement learning is accurately defined as a process where an agent learns by interacting with an environment and receiving feedback in the form of rewards or penalties.*
* *D is incorrect because this describes the process to train generative AI models. This definition does not explicitly define reinforcement learning, but understanding its core mechanism of learning through interaction is a fundamental concept in machine learning.*

Q12:

A company is developing a system to automatically categorize customer support emails. They have a collection of thousands of past emails, and each email has been manually reviewed and tagged with a category such as "Billing Inquiry," "Technical Support," or "Feature Request." What type of data is this?

1. Unlabeled data
2. Labeled data
3. Structured data
4. Raw data

**Correct answer**

Labeled data

**Feedback**

* *A is incorrect because unlabeled data is simply data that is not tagged or labeled in any way. It's raw, unprocessed information without inherent meaning. The emails in the stem have been processed and assigned categories, thus they are not unlabeled.*
* *B is correct because these categories; Billing Inquiry, Technical Support, or Feature Request; function as labels, which assigns meaning to each email by providing a corresponding output. This pairing of input (email) and output (label) defines labeled data, which is crucial for supervised machine learning models that learn from such input-output pairs.*
* *C is incorrect because structured data has information neatly arranged in tables and is easy to search and find. Examples include online shopping orders or bank statements. While the email categories might be considered structured information, the content of the emails themselves (the text) is likely unstructured data as it lacks a predefined format and isn't easily organized into rows and columns*
* *D is incorrect because raw data refers to data that has not been processed or formatted for use. While the original emails might have started as raw data, the process of manually reviewing and tagging them with categories has transformed them into labeled data. The labels provide a level of processing and meaning that distinguishes them from unprocessed raw data.*

Q13:

What is the definition of a generative AI (gen AI) model?

1. A physical device that houses the hardware components of a gen AI system.
2. A complex algorithm trained on vast amounts of data to learn patterns and relationships.
3. A user interface that allows users to interact with a gen AI system.
4. A set of rules and guidelines governing responsible development and use of gen AI.

**Correct answer**

A complex algorithm trained on vast amounts of data to learn patterns and relationships.

**Feedback**

* *A is incorrect because a gen AI model is not a physical device.*
* *B is correct because a generative artificial intelligence (gen AI) model operates as a sophisticated algorithm. This algorithm undergoes an extensive training process, being exposed to and learning from remarkably large and diverse datasets. Through this process, the model identifies intricate patterns, subtle nuances, and complex interrelationships present within the data. This learned understanding of the underlying structure and statistical distributions of the training data then empowers the gen AI model to generate novel and original content that reflects the characteristics of the data it was trained on. This generated content can take various forms, including text, images, audio, or other types of data, depending on the model's architecture and training objectives.*
* *C is incorrect because a gen AI model is not a user interface.*
* *D is incorrect because a gen AI model is not a set of rules and guidelines.*