**Quiz Questions on Generative AI**

**1. What is Generative AI primarily focused on?**

A) Analysing data

B) Generating new data

C) Storing data

D) Deleting data

**Answer:** B) Generating new data

**Explanation:** Generative AI is designed to create new data or content that mimics real world data, often in forms such as text, images, or audio.

**2. Which of the following is NOT one of the four essential pillars of generative AI architecture?**

A) Data Processing Layer

B) Generative Model Layer

C) Data Storage Layer

D) Integration and Deployment Layer

**Answer:** C) Data Storage Layer

**Explanation:** The essential pillars of generative AI architecture include the Data Processing Layer, Generative Model Layer, Improvement and Feedback Layer, and Integration and Deployment Layer, but not a Data Storage Layer.

**3. What is the purpose of the Data Processing Layer in Generative AI?**

A) To store data efficiently

B) To prepare raw inputs for the AI

C) To generate new data patterns

D) To deploy AI models into applications

**Answer:** B) To prepare raw inputs for the AI

**Explanation:** The Data Processing Layer prepares raw inputs—like text, images, and audio—ensuring they are in a format that the AI can understand.

**4. Which model uses two neural networks to generate realistic outputs?**

A) LSTM

B) GANs

C) VAEs

D) RNNs

**Answer:** B) GANs

**Explanation:** GANs (Generative Adversarial Networks) consist of two neural networks—a generator and a discriminator—which work in opposition to produce realistic outputs.

**5. Which generative model is known for generating data by learning the underlying structure within a dataset?**

A) GANs

B) VAEs

C) RNNs

D) Transformers

**Answer:** B) VAEs

**Explanation:** VAEs (Variational Autoencoders) generate data by learning the underlying structure and variability within a dataset.

**6. What type of neural network does not rely on sequential data processing?**

A) RNN

B) CNN

C) Transformer

D) LSTM

**Answer:** C) Transformer

**Explanation:** Unlike recurrent or convolutional neural networks, transformers do not rely on sequential processing, which makes them faster and more flexible.

**7. Which application is NOT a typical use of Generative AI?**

A) Data Augmentation

B) Real Time system monitoring

C) Image Synthesis

D) Text Generation

**Answer:** B) Real Time system monitoring

**Explanation:** Typical applications of Generative AI include Data Augmentation, Image Synthesis, and Text Generation, but not realtime system monitoring.

**8. What is the primary benefit of the Improvement and Feedback Layer in Generative AI architecture?**

A) It stores data permanently.

B) It refines the models through feedback cycles.

C) It encodes audio inputs.

D) It deploys models into applications.

**Answer:** B) It refines the models through feedback cycles.

**Explanation:** The Improvement and Feedback Layer uses a cycle of feedback and adjustments to refine the models, improving the AI's capabilities.

**9. What characteristic of Generative AI allows it to produce a wide range of outputs?**

A) Creativity

B) Variability

C) Language focus

D) Predictive capability

**Answer:** B) Variability

**Explanation:** The variability of Generative AI models allows them to produce a wide range of outputs, making them useful in creative tasks such as art, music, and storytelling.

**10. Which Generative AI application focuses on detecting outliers in datasets?**

A) Anomaly Detection

B) Personalization and Recommendation

C) Creative Design

D) Data Augmentation

**Answer:** A) Anomaly Detection

**Explanation:** Anomaly Detection involves identifying anomalies or outliers in datasets by learning the underlying patterns of normal data distribution.

**11. What does the Encoder component in the Transformer architecture primarily do?**

A) Generates output sequence

B) Processes input text

C) Maps output embeddings

D) Personalised user experiences

**Answer:** B) Processes input text

**Explanation:** The Encoder in the Transformer architecture processes input text by tokenization and applies self attention layers to generate hidden states representing the text's meaning and context.

**12. How do transformers generally generate text?**

A) By using a single layer neural network

B) By processing input sequentially

C) By using a decoder network

D) By directly translating input to output

**Answer:** C) By using a decoder network

**Explanation:** Transformers generate text by using a decoder network that takes an input sequence and outputs a target sequence, using layers like masked self attention and cross attention.

**13. Which layer in the Transformer architecture is directly involved in generating the output sequence?**

A) Linear Layer and Softmax

B) Input Embeddings

C) Positional Encoding

D) Encoder

**Answer:** A) Linear Layer and Softmax

**Explanation:** The Linear Layer and Softmax in the Transformer architecture map decoder produced output embeddings to a higher dimensional space and generated a probability distribution for each output token, enabling token generation.

**14. What is a key advantage of AI in the context of healthcare?**

A) It reduces the need for human doctors.

B) It facilitates early disease detection.

C) It completely replaces traditional treatments.

D) It eliminates the need for hospitals.

**Answer:** B) It facilitates early disease detection.

**Explanation:** One of the key advantages of AI in healthcare is that it facilitates early disease detection, along with personalised treatment plans and medical image analysis, leading to better patient outcomes.

**15. What challenge does AI face related to its complexity?**

A) Low accuracy

B) Interpretability and Transparency

C) Slow processing speeds

D) Limited applications

**Answer:** B) Interpretability and Transparency

**Explanation:** The complexity of AI models makes them difficult to interpret, posing challenges for understanding their decisionmaking processes and ensuring transparency.

**16. Which of the following is a use case of text generation using transformers?**

A) Realtime athletic performance tracking

B) Generating product descriptions

C) Conducting online transactions

D) Monitoring environmental changes

**Answer:** B) Generating product descriptions

**Explanation:** Transformers are utilised for generating humanlike text in various domains, including writing articles and generating product descriptions.

**17. How can transformers be trained for multilingual text generation?**

A) By using a single language dataset

B) By using a shared vocabulary for multiple languages

C) By training exclusively on numerical data

D) By avoiding any finetuning

**Answer**: B) By using a shared vocabulary for multiple languages

**Explanation:** For multilingual text generation, transformers can be trained using a shared vocabulary and a shared encoder decoder network for multiple languages, enabling the model to transfer knowledge across languages.

**18. What is one method to finetune transformers for specific tasks?**

A) Using larger datasets only

B) Ignoring pretrained models

C) Adapting them to a specialised dataset

D) Training from scratch each time

**Answer:** C) Adapting them to a specialised dataset

**Explanation:** Fine Tuning transformers for specific tasks involves leveraging the pretrained weights and representations of large scale transformer models and adapting them to a smaller, more specialised dataset.

**19. Which Generative AI application enhances user experiences through tailored recommendations?**

A) Data Security

B) Anomaly Detection

C) Personalization and Recommendation

D) System Monitoring

**Answer:** C) Personalization and Recommendation

**Explanation:** Generative models are used in Personalization and Recommendation to understand user preferences and provide tailored recommendations, enhancing user experiences.

**20. What does the Improvement and Feedback Layer primarily adjust to enhance AI capabilities?**

A) The speed of data processing

B) The physical hardware used

C) The models through cycles of feedback

D) The external appearance of outputs

**Answer:** C) The models through cycles of feedback

**Explanation:** The Improvement and Feedback Layer employs a cycle of feedback and adjustments to refine the models, focusing on recognizing imperfections in initial attempts and enhancing the AI's capabilities through continuous improvement.