Certainly! Here are 20 multiple-choice questions (MCQs) on generative AI with options. Please note that the answers are provided at the end:

1. **What is the primary goal of generative AI?**
   - A) Classifying data
   - B) Generating new data
   - C) Optimizing algorithms
   - D) Enhancing existing models

2. **Which type of generative model is known for generating realistic images, often used in image synthesis?**
   - A) GAN (Generative Adversarial Network)
   - B) VAE (Variational Autoencoder)
   - C) RNN (Recurrent Neural Network)
   - D) CNN (Convolutional Neural Network)

3. **What is the key concept behind GANs (Generative Adversarial Networks)?**
   - A) Reinforcement learning
   - B) Unsupervised learning
   - C) Adversarial training
   - D) Supervised learning

4. **What role does the "generator" play in a GAN?**
   - A) It discriminates between real and generated samples
   - B) It generates new samples
   - C) It optimizes the loss function
   - D) It preprocesses input data

5. **In VAE (Variational Autoencoder), what is the purpose of the "encoder" component?**
   - A) Generating new data
   - B) Reducing dimensionality
   - C) Learning a probability distribution
   - D) Generating adversarial examples

6. **What does the term "latent space" refer to in generative AI?**
   - A) The space where data is labeled
   - B) The space of all possible inputs to a generator
   - C) The space where data is stored in memory
   - D) The space where the model is trained

7. **Which application area benefits from generative AI in creating realistic human-like text?**
   - A) Speech recognition
   - B) Sentiment analysis
   - C) Natural language generation

- D) Image recognition

8. **What is the concept of "style transfer" in generative AI?**
   - A) Transferring artistic styles between images
   - B) Transferring learning models between domains
   - C) Transferring textual styles in natural language processing
   - D) Transferring weights between layers in neural networks

9. **Which algorithm is commonly used for generating sequences, such as in text generation?**
   - A) GAN
   - B) VAE
   - C) LSTM (Long Short-Term Memory)
   - D) PCA (Principal Component Analysis)

10. **What is the primary challenge in training GANs (Generative Adversarial Networks)?**
    - A) Mode collapse
    - B) Overfitting
    - C) Underfitting
    - D) Gradient vanishing

11. **Which type of generative model is suitable for dealing with uncertainty in the input data?**
    - A) GAN
    - B) VAE
    - C) RNN
    - D) CNN

12. **In the context of generative AI, what does the term "coherence" refer to?**
    - A) The quality of generated samples
    - B) The ability to handle diverse input data
    - C) The ability to generalize to new data
    - D) The interpretability of the model

13. **Which of the following is a limitation of generative models like GANs?**
    - A) They are computationally efficient
    - B) They may suffer from mode collapse
    - C) They are resistant to adversarial attacks
    - D) They require large amounts of labeled data

14. **What is the main difference between unsupervised and supervised learning in the context of generative AI?**
    - A) Unsupervised learning requires labeled data, while supervised learning does not.
    - B) Supervised learning requires labeled data, while unsupervised learning does not.
    - C) Both require labeled data.
    - D) Neither requires labeled data.

15. **What is the purpose of the "teacher forcing" technique in sequence generation with recurrent networks?**
   - A) Enhancing model robustness
   - B) Accelerating training time
   - C) Reducing the impact of vanishing gradients
   - D) Stabilizing adversarial training

16. **What is the significance of the "KL divergence" term in the loss function of a VAE?**
   - A) Encourages the model to generate diverse samples
   - B) Encourages the model to generate high-quality samples
   - C) Regulates the closeness of the learned distribution to a predefined distribution
   - D) Controls the learning rate of the model

17. **Which generative model is often used for generating sequences with variable lengths?**
   - A) GAN
   - B) VAE
   - C) LSTM
   - D) CNN

18. **In generative AI, what does the term "conditional generation" refer to?**
   - A) Generating samples without any specific condition
   - B) Generating samples based on a given condition or input
   - C) Generating adversarial examples
   - D) Generating samples with specific styles

19. **What is the primary advantage of using generative models in data augmentation for image datasets?**
   - A) Improved model interpretability
   - B) Faster training times
   - C) Enhanced generalization to new data
   - D) Reduction of overfitting

20. **Which evaluation metric is commonly used to assess the quality of generated images in generative AI?**
   - A) Accuracy
   - B) Precision
   - C) F1 score
   - D) Inception Score

Answers:
1. B, 2. A, 3. C, 4. B, 5. C, 6. B, 7. C, 8. A, 9. C, 10. A, 11. B, 12. A, 13. B, 14. B, 15. C, 16. C, 17. C, 18. B, 19. C, 20. D