Deep Learning Quiz

1. What is the primary goal of deep learning?
A. To follow pre-programmed rules
B. To learn patterns from data automatically
C. To train neural networks for intelligent decision-making
D. To replace human intelligence entirely

2. Which of these is a key advantage of deep learning over traditional machine learning?
A. Requires less data
B. Automatically extracts features from raw data
C. Needs no computational power
D. Works only with structured data

3. What type of data does deep learning excel at processing?
A. Only numerical tables
B. Unstructured data (images, text, audio)
C. Small datasets
D. Manually labeled spreadsheets

4. Which technique is essential for training deep learning models?
A. Manual feature engineering
B. Automatic feature extraction
C. Rule-based programming
D. Linear regression

5. What is a major limitation of deep learning?
A. Low accuracy
B. High computational resource requirements
C. Inability to handle images
D. Works only with small datasets

6. Which hardware is commonly used to accelerate deep learning training?
A. Standard CPUs
B. GPUs and TPUs
C. Hard disk drives
D. RAM modules

7. What is "overfitting" in deep learning?
A. Model performs well on new data
B. Model memorizes training data but fails on unseen data
C. Model stops learning
D. Model uses too little data

8. Which of these is a real-world application of deep learning?
A. Sorting alphabetically
B. Autonomous vehicles (self-driving cars)
C. Simple calculator programs
D. Printing documents

9. What does "automatic feature extraction" eliminate the need for?
A. Data
B. Manual feature engineering
C. Neural networks
D. All computational resources

10. Which field uses deep learning for analyzing medical images?
A. Agriculture
B. Healthcare (e.g., cancer detection)
C. Textile manufacturing
D. Plumbing

11. What is the role of an "activation function" in neural networks?
A. To store data
B. To introduce non-linearity
C. To reduce dataset size
D. To label outputs

12. Which deep learning model is used for image recognition?
A. Linear Regression
B. Convolutional Neural Network (CNN)
C. Decision Tree
D. K-Means

13. What is reinforcement learning in deep learning?
A. Learning without data
B. Learning through rewards/penalties from interactions
C. Copying human decisions
D. Memorizing past actions

14. Which algorithm is famous for mastering the game of Go?
A. Random Forest
B. AlphaGo (Deep Reinforcement Learning)
C. K-Nearest Neighbors
D. SVM

15. What is a "black-box" problem in deep learning?
A. Models are transparent
B. Difficulty interpreting how decisions are made
C. Models use only black-colored data
D. Requires no training

16. Which of these is a challenge of deep learning?
A. Works only with tiny datasets
B. High energy consumption during training
C. No need for labeled data
D. Limited to text processing

17. What is transfer learning?
A. Forgetting past learning
B. Reusing a pre-trained model for a new task
C. Copying data manually
D. Ignoring computational resources

18. Which layer in a CNN detects edges in images?
A. Output layer
B. Initial (early) layers
C. Fully connected layer
D. Loss layer

19. What is the purpose of a "loss function" in deep learning?
A. To increase errors
B. To measure and minimize prediction errors
C. To stop training early
D. To delete data

20. Which of these is NOT a deep learning application?
A. Speech recognition (e.g., Siri)
B. Sorting numbers in Excel
C. Fraud detection in banking
D. Generating art (e.g., NFTs)

21. What does "scalability" mean in deep learning?
A. Models shrink with more data
B. Performance improves with more data/hardware
C. Works only on single machines
D. Requires no data

22. Which ethical issue is associated with deep learning?
A. Too much transparency
B. Bias in facial recognition systems
C. Overly simple models
D. Low computational costs

23. What is the function of a "neuron" in a neural network?
A. To store data permanently
B. To process and transmit information
C. To delete inputs
D. To slow down training

24. Which technique helps prevent overfitting?
A. Using tiny datasets
B. Dropout regularization
C. Ignoring validation data
D. Removing all layers

25. What is a key requirement for deep learning success?
A. Small datasets
B. Large labeled datasets
C. No computational resources
D. Manual rule-writing