TensorFlow & Keras MCQ Quiz (Chapter 3)

Instructions: Select the best answer for each question.

1. What is TensorFlow?

a) A programming language

b) A library for machine learning

c) A type of computer hardware

d) A database system

2. What are tensors in TensorFlow?

a) Single numbers

b) Multi-dimensional arrays of data

c) Text files

d) Graphs

3. What is Keras?

a) A programming language

b) A high-level API for TensorFlow

c) A type of tensor

d) A cloud service

4. What is the main purpose of TensorFlow?

a) To create websites

b) To build and train machine learning models

c) To edit photos

d) To manage databases

5. What does a "rank-0" tensor represent?

a) A single number (scalar)

b) A list of numbers (vector)

c) A table of numbers (matrix)

d) A 3D array

6. Which of these is NOT a type of tensor?

a) Scalar

b) Vector

c) String

d) Matrix

7. What is the role of an activation function in a neural network?

a) To store data

b) To introduce non-linearity

c) To delete unnecessary data

d) To slow down training

8. Which activation function is commonly used in hidden layers?

a) Sigmoid

b) ReLU

c) Softmax

d) Tanh

9. What does the "Sequential" model in Keras do?

a) Creates complex branched networks

b) Stacks layers linearly

c) Deletes layers

d) Visualizes data

10. What is the purpose of TensorBoard?

a) To write code

b) To visualize model training

c) To install TensorFlow

d) To replace Keras

11. What is a "rank-1" tensor?

a) A single number

b) A list of numbers (vector)

c) A table of numbers

d) A 3D array

12. Which of these is a benefit of using Keras?

a) Requires more code

b) Simplifies model building

c) Slower than TensorFlow

d) Only works with CPUs

13. What does the "Dense" layer in Keras do?

a) Deletes data

b) Connects every neuron to all neurons in the next layer

c) Only works with images

d) Slows down training

14. What is the main advantage of TensorFlow?

a) Only works on small datasets

b) Can handle large-scale machine learning tasks

c) Doesn't need data

d) Only works with text

15. Which of these is NOT a TensorFlow component?

a) Tensors

b) Graphs

c) Word documents

d) Layers

16. What does "eager execution" in TensorFlow allow?

a) Slower calculations

b) Immediate operation evaluation

c) No need for data

d) Only works with CPUs

17. What is the output layer's role in a neural network?

a) Stores raw data

b) Produces final predictions

c) Deletes unnecessary layers

d) Slows down training

18. Which of these is a type of neural network layer?

a) Cooking layer

b) Convolutional layer

c) Sleeping layer

d) Writing layer

19. What does "backpropagation" do?

a) Deletes the model

b) Adjusts weights to reduce errors

c) Speeds up data entry

d) Creates new datasets

20. Why are activation functions important?

a) They make models linear

b) They allow learning complex patterns

c) They delete data

d) They slow down training

21. What is a "rank-2" tensor?

a) A single number

b) A list of numbers

c) A table of numbers (matrix)

d) A 3D array

22. Which of these is a machine learning task?

a) Baking a cake

b) Image classification

c) Driving a car

d) Writing a story

23. What does the "fit()" method in Keras do?

a) Deletes the model

b) Trains the model on data

c) Creates new data

d) Slows down training

24. What is the purpose of a "loss function"?

a) To store data

b) To measure model errors

c) To delete models

d) To speed up training

25. Which of these is NOT a machine learning framework?

a) TensorFlow

b) Keras

c) Microsoft Word

d) PyTorch