

Q:1. What is the primary goal of Machine Learning (ML)?

- A. To write explicit rules for software to follow
- B. To allow systems to learn patterns from data and make predictions
- C. To create static programs that do not change behavior
- D. To replace databases with neural networks

Answer : B

Q:2. Fill in the blank to correctly import the Linear Regression model in Python:

```
import pandas as pd
from sklearn.linear_model import _____
```

Choose the correct option

- A: LinearRegression
- B: linear_regression
- C: regression
- D: lin_reg

Answer : A

Q:3. What does the following line do in Python?

```
joblib.dump(model_lin_reg, 'linear_regression_model.pkl')
```

Choose the correct option

- A. It saves the model to a file
- B. It loads a model from a file
- C. It evaluates the model and prints results
- D. It deletes the model from memory

Answer : A

Q:4. What is the main goal of Exploratory Data Analysis (EDA)?

- A. To train a model
- B. To visualize charts only
- C. To explore, clean, and understand the data
- D. To export data to Excel

Answer : C

Q:5. Which type of data is used in supervised learning?

- A. Labeled data**
- B. Unlabeled data**
- C. Raw image data**
- D. Audio data**

Answer : A

Q:6. The function `sns.boxplot()` is used to detect ____ and visualize distribution characteristics.

- A. duplicates**
- B. outliers**
- C. nulls**
- D. categories**

Answer : B

Q:7. Underfitting typically happens when the model is too ____ to capture the underlying structure of the data.

- A. large**
- B. simple**
- C. complex**
- D. deep**

Answer : B

Q:8. One of the key goals of L1 and L2 regularization is to prevent ____ by penalizing large weights.

- A. optimization**
- B. dropout**
- C. overfitting**
- D. training**

Answer : C

Q:9. A neural network consists of input, hidden, and output layers where each neuron computes a weighted sum followed by a(n) _____ function.

- A. loss**
- B. dropout**
- C. activation**
- D. optimizer**

Answer : C

Q:10. Two different words appear in similar contexts and get mapped to similar vector representations. This behavior is most characteristic of:

- A. Bag-of-Words.**
- B. TF-IDF.**
- C. One-Hot Encoding.**
- D. Word Embeddings.**

Answer : D

Q:11. Which of the following best defines Natural Language Processing (NLP)?

- A. Programming computers to read binary code**
- B. Teaching machines to interpret and generate human language**
- C. Compressing human language into zip files**
- D. Translating HTML documents into JSON**

Answer : B

Q:12. What is a key feature of the Word2Vec model in NLP?

- A. It represents each word as a unique one-hot vector**
- B. It predicts the next sentence in a paragraph**
- C. It learns word vectors based on surrounding context and captures semantic similarity**
- D. It requires labeled data for training**

Answer : C

Q:13. Git is commonly used in ML workflows to track changes in ____ and experiment logic.

- A. model outputs**
- B. training datasets**
- C. hardware dependencies**
- D. code and scripts**

Answer : D

Q:14. The command `dvc add data.csv` creates a `.dvc` file which tracks the ____ of the data file.

- A. size**
- B. content hash**
- C. name**
- D. metadata**

Answer : B

Q:15. Feast is used in MLOps to store and serve ____ to models in both training and production environments.

- A. predictions**
- B. hyperparameters**
- C. raw data**
- D. features**

Answer : D

Q:16. How do you log a parameter in MLflow?

- A. `log.params()`**
- B. `mlflow.log_param()`**
- C. `mlflow.write_param()`**
- D. `log_param()`**

Answer : B

Q:17. What is an artifact in MLflow?

- A. A file or folder output from an ML run**
- B. A container image**
- C. A metric value**
- D. A Git commit**

Answer : A

Q:18. What is MLflow Model Registry used for?

- A. Training models**
- B. Managing model lifecycle (staging → production)**
- C. Saving plots**
- D. Logging datasets**

Answer : B

Q:19. Which command is used to build a Docker image from a Dockerfile?

- A. docker run -t image_name .**
- B. docker start image_name .**
- C. docker build -t image_name .**
- D. docker compile image_name .**

Answer : C

Q:20. What is the primary purpose of a Dockerfile.

- A. Automate GPU training**
- B. Deploy to the cloud**
- C. Describe how to build a Docker image**
- D. Package model weights only**

Answer : C

Q:21. What does EXPOSE 80 do in a Dockerfile?

- A. Opens port on host**
- B. Informs Docker that the container listens on port 80**
- C. Maps port to host**
- D. Starts a web server**

Answer : B

Q:22. What is a Pod in Kubernetes?

- A. The smallest deployable unit containing one or more containers**
- B. A VM**
- C. A cluster**
- D. A node**

Answer : A

Q:23. How do you create a pod using a YAML file?

- A. kubectl apply -f pod.yaml**
- B. kubectl run pod.yaml**
- C. kubectl init pod.yaml**
- D. k8s create pod.yaml**

Answer : C

Q:24. Which of the following is a Master component?

- A. kubelet**
- B. API Server**
- C. Pod**
- D. Container runtime**

Answer : B

Q:25. Which tool is commonly used for ML model monitoring?

- A. Prometheus**
- B. GitHub**
- C. Docker Hub**
- D. TensorBoard**

Answer : A

Q:26. What is concept drift in machine learning?

- A. Codebase changes**
- B. Change in data distribution over time**
- C. GPU degradation**
- D. UI rendering delay**

Answer : B

Q:27. What is a best practice for production logging?

- A. Avoid printing sensitive data**
- B. Use only print statements**
- C. Log all user inputs**
- D. Use DEBUG level always**

Answer : A

Q:28. In a CI/CD pipeline for ML, what is typically automated during the "Integration" phase?

- A. Model inference**
- B. Manual testing**
- C. Code merging, testing, and validation**
- D. Monitoring live traffic**

Answer : C

Q:29. What is a "job" in GitHub Actions?

- A. A manual task performed by the user**
- B. A unit of work that runs on a runner**
- C. A function in a Python script**
- D. A GitHub branch**

Answer: B

Q:30 Which of the following tools helps deploy ML models in a cloud-native CI/CD workflow?

- A. MySQL**
- B. Streamlit**
- C. Kubernetes**
- D. Scikit-learn**

Answer: C