IT 34 - Knowledge Representation and Artificial

1. What is the term used to describe the ability of a machine to exhibit intelligent behavior?

A) Artificial Intelligence (AI)

B) Machine Learning (ML)

C) Deep Learning (DL)

D) Data Science (DS)

Answer: A) Artificial Intelligence (AI)

2. Which of the following statements best defines Artificial Intelligence (AI)?

A) AI is the simulation of human intelligence processes by machines.

B) AI is the study of algorithms that improve automatically through experience.

C) AI is a subset of computer science that focuses on statistical models and inference.

D) AI is the process of training neural networks with large datasets.

Answer: A) AI is the simulation of human intelligence processes by machines.

3. How is AI impacting real-life scenarios?

A) By automating repetitive tasks and increasing efficiency.

B) By reducing the need for human intervention in decision-making processes.

C) By enabling personalized recommendations and predictions.

D) All of the above.

Answer: D) All of the above.

4. Which of the following is NOT a branch of Artificial Intelligence (AI)?

A) Natural Language Processing (NLP)

B) Robotics

C) Cybersecurity

D) Computer Vision

Answer: C) Cybersecurity

5. What are the limitations of AI?

A) Lack of creativity and intuition

B) Limited understanding of context

C) Ethical concerns and biases

D) All of the above

Answer: D) All of the above

6. Why is knowledge representation necessary in AI?

A) To store and organize information for reasoning

B) To enhance the performance of machine learning algorithms

C) To facilitate communication between different AI systems

D) To improve the accuracy of predictive models

Answer: A) To store and organize information for reasoning

7. Which of the following is NOT a mapping scheme used in knowledge representation?

A) Semantic Network

B) Frames

C) Decision Trees

D) Expert Systems

Answer: D) Expert Systems

8. What are the properties of a good knowledge-based system?

A) Accuracy, completeness, and efficiency

B) Transparency, interpretability, and scalability

C) Adaptability, robustness, and simplicity

D) All of the above

Answer: A) Accuracy, completeness, and efficiency

9. Which of the following is NOT a type of knowledge?

A) Declarative knowledge

B) Procedural knowledge

C) Semantic knowledge

D) Inertial knowledge

Answer: C) Semantic knowledge

10. What are some common issues in knowledge representation?

A) Ambiguity, inconsistency, and scalability

B) Efficiency, interpretability, and relevance

C) Complexity, redundancy, and granularity

D) All of the above

Answer: A) Ambiguity, inconsistency, and scalability

11. Which graphical representation is commonly used to represent problem-solving processes?

A) AND-OR Graph

B) Decision Tree

C) Neural Network

D) Markov Chain

Answer: A) AND-OR Graph

12. Which AI problem-solving environment involves navigating a grid-like world inhabited by hazards like pits and wumpuses?

A) Blocks World

B) Traveling Salesman Problem

C) Wumpus World

D) Tower of Hanoi

Answer: C) Wumpus World

13. Which branch of logic deals with propositions as a whole, rather than breaking them down into constituent parts?

A) Propositional Logic

B) Predicate Logic

C) Modal Logic

D) Temporal Logic

Answer: A) Propositional Logic

14. What type of inference technique starts with known facts and moves toward a conclusion?

A) Forward chaining

B) Backward chaining

C) Inductive reasoning

D) Abductive reasoning

Answer: A) Forward chaining

15. Which logic deals with the relationship between objects in the world and properties they possess?

A) First Order Logic

B) Modal Logic

C) Temporal Logic

D) Description Logic

Answer: A) First Order Logic

16. Which method of reasoning involves constructing a proof tree to determine the validity of an argument?

A) Tableau Method

B) Resolution Refutation Method

C) Axiomatic Systems

D) Natural Deduction

Answer: A) Tableau Method

17. What is the primary goal of the Tableau Method in logic?

A) To find a contradiction in a set of statements.

B) To construct a valid argument.

C) To derive new logical rules.

D) To simplify logical expressions.

Answer: A) To find a contradiction in a set of statements.

18. Which method of proof involves assuming the negation of the statement to be proved and deriving a contradiction?

A) Tableau Method

B) Resolution Refutation Method

C) Axiomatic Systems

D) Natural Deduction

Answer: B) Resolution Refutation Method

19. Which of the following is NOT a type of Machine Learning?

A) Supervised Learning

B) Unsupervised Learning

C) Reinforcement Learning

D) Deterministic Learning

Answer: D) Deterministic Learning

20. Which machine learning algorithm is used for predicting continuous-valued output?

A) Linear Regression

B) Logistic Regression

C) Support Vector Machines

D) Naïve Bayes Classification

Answer: A) Linear Regression

21. Which algorithm is suitable for binary classification tasks?

A) Linear Regression

B) Logistic Regression

C) Decision Trees

D) K-means Clustering

Answer: B) Logistic Regression

22. Which machine learning technique is commonly used for handling non-linearly separable data?

A) Linear Discriminant Analysis

B) Support Vector Machines

C) K-nearest Neighbors

D) Random Forest

Answer: B) Support Vector Machines

23. Which of the following is a type of unsupervised learning algorithm used for clustering data?

A) Linear Discriminant Analysis

B) K-means

C) Naïve Bayes

D) Random Forest

Answer: B) K-means

24. What is the primary objective of data analysis in machine learning?

A) To identify patterns and trends in the data.

B) To clean and preprocess the data for modeling.

C) To extract meaningful features for prediction.

D) All of the above.

Answer: D) All of the above.

25. Which type of learning algorithm learns from a reward signal provided by the environment?

A) Supervised Learning

B) Unsupervised Learning

C) Reinforcement Learning

D) Semi-supervised Learning

Answer: C) Reinforcement Learning

26. Which of the following is NOT a fundamental component of deep learning?

A) Artificial Neural Networks (ANN)

B) Convolutional Neural Networks (CNN)

C) Recurrent Neural Networks (RNN)

D) Decision Trees

Answer: D) Decision Trees

27. Which type of deep learning architecture is well-suited for image classification tasks?

A) RNN

B) CNN

C) GAN

D) NLP

Answer: B) CNN

28. What is the primary focus of GANs (Generative Adversarial Networks)?

A) Image Classification

B) Image Generation

C) Text Analysis

D) Speech Recognition

Answer: B) Image Generation

29. Which deep learning model is commonly used for sequential data processing, such as natural language?

A) CNN

B) RNN

C) GAN

D) ANN

Answer: B) RNN

30. Which Python library is commonly used for deep learning tasks, particularly in the context of neural networks?

A) TensorFlow

B) SciPy

C) PyTorch

D) Scikit-learn

Answer: C) PyTorch

31. What is the primary function of a data center in the context of AI?

A) To store and process large volumes of data

B) To train machine learning models

C) To deploy AI applications

D) All of the above

Answer: D) All of the above

32. Which computing architecture is designed to process data closer to the source, reducing latency?

A) Data Center

B) Gateway Edge Computing

C) Quantum Computing

D) Cloud Computing

Answer: B) Gateway Edge Computing

33. Which hardware component is essential for accelerating deep learning tasks?

A) CPU

B) GPU

C) FPGA

D) RAM

Answer: B) GPU

34. Which of the following applications is NOT typically associated with AI?

A) Robotics Process Automation

B) Image Processing

C) Stock Market Analysis

D) Speech Recognition

Answer: C) Stock Market Analysis

35. Which AI application involves automating repetitive tasks in business processes using software robots?

A) Robotics Process Automation

B) Image Processing

C) NLP

D) Speech Recognition

Answer: A) Robotics Process Automation

36. Which AI technology focuses on understanding and generating human language?

A) NLP

B) Image Processing

C) Robotics

D) Speech Recognition

Answer: A) NLP

37. Which AI application involves analyzing and interpreting visual data?

A) NLP

B) Image Processing

C) Robotics

D) Speech Recognition

Answer: B) Image Processing

38. Which technology enables computers to understand, interpret, and generate human speech?

A) NLP

B) Image Processing

C) Robotics

D) Speech Recognition

Answer: D) Speech Recognition