



PUNE VIDYARTHI GRIHA'S
COLLEGE OF SCIENCE AND TECHNOLOGY
Affiliated to University of Mumbai

Question Bank

Class: T.Y.B. Sc.CS

Semester: V

Subject: Artificial Intelligence

UNIT 1

1. Artificial Intelligence helps to build machines that are
 - A. Soft
 - B. Manual
 - C. Autonomous
 - D. Hard
2. When a system does right thing it is termed as
 - A. Smart
 - B. Expert
 - C. Fast
 - D. Rational
3. Turing test was proposed in year
 - A. 1950
 - B. 1955
 - C. 1960
 - D. 1965
4. The branch of Artificial Intelligence which helps for computation
 - A. Economics
 - B. Mathematics
 - C. Language
 - D. Neuroscience
5. The branch of Artificial Intelligence which helps for thinking
 - A. Psychology
 - B. Linguistics
 - C. Economics
 - D. Mathematics
6. The area of making artifacts in Artificial Intelligence

- A. Control Theory
 - B. Psychology
 - C. Linguistics
 - D. Neuroscience
7. Turing Test was proposed by
- A. Henna Turing
 - B. Sam Turing
 - C. John Turing
 - D. Alan Turing
8. The cognitive approach applies to thinking
- A. Rationally
 - B. Humanly
 - C. Logically
 - D. Atomically
9. The state of art of Artificial Intelligence to understand satellite images
- A. Image Engineering
 - B. Image Making
 - C. Image Analysis
 - D. Image Drawing
10. Which agent receives keystrokes, file contents, and network packets as sensory inputs the agent is known as
- A. Hardware Agent
 - B. Software Agent
 - C. Manual Agent
 - D. Robotic Agent
11. Inputs received by agent are known as
- A. Request
 - B. Responses
 - C. Display
 - D. Percepts
12. Which of the following are actuators for vacuum world
- A. Left, Height, Side
 - B. Right, Above, Side
 - C. Suck, Above, Left
 - D. Left, Right, Suck
13. The environment for Taxi Driving Agent consists of
- A. Maps
 - B. GPS
 - C. Roads, Traffic
 - D. Cameras
14. The percept of Part Picking Robot is
- A. GPS
 - B. Engine
 - C. Cameras
 - D. Conveyor Belt
15. Chess playing agent works in which environment

- A. Single Agent
 - B. No observable
 - C. Multi Agent
 - D. Partially observable
16. The type of environment which is random in nature
- A. Competitive
 - B. Stochastic
 - C. Fully observable
 - D. Deterministic
17. The agents which work on the current percepts are known as
- A. Simple Reflex
 - B. Action Reflex
 - C. Current Reflex
 - D. Basic Reflex
18. The agents which work on "How Things happen in this world " are known as
- A. Current Reflex
 - B. World Agent
 - C. Knowledge Agent
 - D. Model Based Agent
19. The utility agent work on
- A. Functions
 - B. Preferences
 - C. Data
 - D. Index values
20. The agents which work on search and planning mechanism
- A. Multi Agent
 - B. Knowledge Agent
 - C. Goal Based Agent
 - D. Complex Agent
21. What is Artificial intelligence?
- A. Putting your intelligence into Computer
 - B. Programming with your own intelligence
 - C. Making a Machine intelligent
 - D. Playing a Game
22. The field of AI attempts not just to understand but also to _____.
- A. Build Intelligent Software
 - B. Build Intelligent Entities
 - C. Build Smart Machines
 - D. Build Chatbot's
23. The Turing Test designed to provide a satisfactory operational definition of intelligence. Who proposed it?
- A. John Turing
 - B. Niels Bohr
 - C. Peter Drury
 - D. Alan Turing

24. A _____ is one that acts as to achieve the best outcome or, when there is uncertainty, the best expected outcome.
- A. Rational Agent
 - B. Agent
 - C. Super-agent
 - D. AI Model
25. Neuroscience is the study of what?
- A. Maths
 - B. Economics
 - C. Nervous System and Brain
 - D. Computer Networks
26. _____ is the process of looking to sequence of actions
- A. Problem
 - B. Location
 - C. Search
 - D. Cost
27. The lowest path among all the solutions is referred as
- A. Smallest Path
 - B. Basic Path
 - C. Path
 - D. Optimal Path
28. The execution algorithm performance will depend on
- A. Time Complexity
 - B. Space Complexity
 - C. Optimality
 - D. Completeness
29. The maximum number of successors in a tree is known as
- A. Depth
 - B. Branching Factor
 - C. Height
 - D. Successors
30. The uninformed search in which exploration happens only in one direction is
- A. Breadth First Search
 - B. Depth First Search
 - C. Unidirectional Search
 - D. IDDFS
31. The search in which there are two parallel explorations is described by
- A. Iterative Search
 - B. Bidirectional Search
 - C. Uniform Cost Search
 - D. Depth First Search
32. The value in the state space which defines the relevancy of state with respect to the goal state
- A. Cost
 - B. Value
 - C. Heuristics

- D. State value
33. The limitations of Hill Climbing are
- A. Local Minimum and Global Minimum
 - B. Local Maxima and Global Maxima
 - C. Local Flat Space
 - D. Local Maxima and Ridges
34. The search which consumes fixed amount of memory
- A. Uninformed Search
 - B. Informed Search
 - C. Local Search
 - D. Cost Search
35. The time complexity of Breadth First Search is
- A. b^d
 - B. b^g
 - C. $b+m$
 - D. $b*g$
36. The minimizing function for A* Search algorithm is
- A. $f(n) = g(n) + h(n)$
 - B. $f(n) = g(n) + k(n)$
 - C. $f(n) = g(n) + p(n)$
 - D. $f(n) = g(n)$
37. The state which has highest value for objective function is _____
- A. Solution
 - B. Maximum Path
 - C. Global Maximum
 - D. Plateau
38. Downhill state space search is accepted in _____
- A. Local Search
 - B. Hill Climbing
 - C. Breadth First Search
 - D. Simulated Annealing Search
39. Genetic Algorithm works on _____
- A. Fitness Function
 - B. Heuristics
 - C. Minimum depth
 - D. Locality
40. The optimality of Breadth First Search over Depth First Search
- A. Greater
 - B. Less
 - C. Equal
 - D. Average
41. The optimality of Depth First Search over Breadth First Search
- A. Greater
 - B. Average

- C. Less
 - D. Equal
42. The search algorithm which works on minimal path cost finding
- A. Uniform Cost Search
 - B. Bidirectional Search
 - C. IDDFS
 - D. Local Search
43. Which feature is not supported in simple hill climbing
- A. Finding Successors
 - B. Heuristics
 - C. Backtracking
 - D. Local Maxima
44. The online search makes use of _____ strategy
- A. Breadth First Search
 - B. Depth First Search
 - C. Unidirectional Search
 - D. Astar Search
45. The environment for Online Search agent is _____
- A. Fully observable
 - B. Partially observable
 - C. No observable
 - D. Dynamic
46. What is state space?
- A. The whole problem
 - B. Your Definition to a problem
 - C. Problem you design
 - D. Representing your problem with variable and parameter
47. A search algorithm takes _____ as an input and returns _____ as an output.
- A. Input, output
 - B. Problem, solution
 - C. Solution, problem
 - D. Parameters, sequence of actions
48. A problem in a search space is defined by one of these state.
- A. Initial state and Goal state
 - B. Better state
 - C. Intermediate state
 - D. Last state
49. The Set of actions for a problem in a state space is formulated by a _____
- A. Intermediate states
 - B. Initial state
 - C. Successor function, which takes current action and returns next immediate state
 - D. Numeric Function
50. The process of removing detail from a given state representation is called _____

- A. Extraction
- B. Abstraction
- C. Information Retrieval
- D. Mining of data

UNIT 2

1. What will take place as the agent observes its interactions with the world?
 - a) Learning
 - b) Hearing
 - c) Perceiving
 - d) Speech
2. What is used in determining the nature of the learning problem?
 - a) Environment
 - b) Feedback
 - c) Problem
 - d) Action
3. Which is used to choose among multiple consistent hypotheses?
 - a) Razor
 - b) Ockham razor
 - c) Learning element
 - d) hypothesis
4. What will happen if the hypothesis space contains the true function?
 - a) Realizable
 - b) Unrealizable
 - c) Non deterministic
 - d) Realistic
5. What takes input as an object described by a set of attributes?
 - a) Tree
 - b) Graph
 - c) Decision graph
 - d) Decision tree
6. How the decision tree reaches its decision?
 - a) Single test
 - b) Two test
 - c) Sequence of test
 - d) No test
7. Which of the following is the model used for learning?
 - a) Old Model
 - b) New Model
 - c) Supervised Learning
 - d) Medium Model
8. Automated vehicle is an example of _____
 - a) Supervised learning
 - b) Unsupervised learning
 - c) Active learning
 - d) Reinforcement learning
9. Which of the following is an example of active learning?
 - a) News Recommender system
 - b) Dust cleaning machine
 - c) Automated vehicle

- d) Part Picking robot
10. In which of the following learning the teacher returns reward and punishment to learner?
- a) Active learning
 - b) Reinforcement learning
 - c) Supervised learning
 - d) Unsupervised learning
11. Decision trees are appropriate for the problems where _____
- a) Attributes are both numeric and nominal
 - b) Target function takes on a continuous number of values.
 - c) Data may don't have errors
 - d) Attributes are both non numeric and nominal
12. Which of the following is also called as exploratory learning?
- a) Supervised learning
 - b) Active learning
 - c) Unsupervised learning
 - d) Reinforcement learning
13. Which is not a desirable property of a logical rule-based system?
- a) Locality
 - b) Attachment
 - c) Detachment
 - d) Truth-Functionality
14. In an Unsupervised learning _____
- a) Specific output values are given
 - b) Specific output values are not given
 - c) No specific Inputs are given
 - d) Both inputs and outputs are given
15. Inductive learning involves finding a _____
- a) Consistent Hypothesis
 - b) Inconsistent Hypothesis
 - c) Regular Hypothesis
 - d) Irregular Hypothesis
16. If a hypothesis says it should be positive, but in fact, it is negative, we call it _____
- a) A consistent hypothesis
 - b) A false negative hypothesis
 - c) A false positive hypothesis
 - d) A specialized hypothesis
17. Neural Networks are complex _____ with many parameters.
- a) Linear Functions
 - b) Nonlinear Functions
 - c) Discrete Functions
 - d) Exponential Functions
18. A perceptron is a _____
- a) Feed-forward neural network
 - b) Backpropagation algorithm
 - c) Backtracking algorithm
 - d) Feed Forward-backward algorithm
19. What is an auto-associative network?
- a) a neural network that contains no loops
 - b) a neural network that contains feedback

- c) a neural network that has only one loop
 - d) a single layer feed-forward neural network with pre-processing
20. Which of the following is true for neural networks?
- (i) The training time depends on the size of the network.
 - (ii) Neural networks can be simulated on a conventional computer.
 - (iii) Artificial neurons are same in operation to biological ones.
- a) (i) is true
 - b) (ii) is true
 - c) (i) and (ii) are true
 - d) (iii) are true
21. What is back propagation?
- a) It is another name given to the curvy function in the perceptron
 - b) It is the transmission of error back through the network to adjust the inputs
 - c) It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn
 - d) None of the mentioned
22. Which of the following is not the promise of artificial neural network?
- a) It can explain result
 - b) It can survive the failure of some nodes
 - c) It has inherent parallelism
 - d) It can handle noise
23. The network that involves backward links from output to the input and hidden layers is called _____
- a) Self organizing maps
 - b) Perceptrons
 - c) Recurrent neural network
 - d) Multi layered perceptron
24. A _____ is a decision support tool that uses a tree-like graph or model of decisions and their possible consequences, including chance event outcomes, resource costs, and utility.
- a) Decision tree
 - b) Graphs
 - c) Trees
 - d) Neural Networks
25. What is Decision Tree?
- a) Flow-Chart
 - b) Structure in which internal node represents test on an attribute, each branch represents outcome of test and each leaf node represents class label
 - c) Flow-Chart & Structure in which internal node represents test on an attribute, each branch represents outcome of test and each leaf node represents class label
 - d) Nodes
26. Decision Nodes are represented by _____
- a) Disks
 - b) Squares
 - c) Circles
 - d) Triangles
27. The explanation facility of an expert system may be used to _____
- a) construct a diagnostic model
 - b) expedite the debugging process
 - c) explain the system's reasoning process

- d) explain the system's reasoning process & expedite the debugging process
28. Where does the degree of belief is applied?
- a) Propositions
 - b) Literals
 - c) Variables
 - d) Statements
29. What is meant by probability density function?
- a) Probability distributions
 - b) Continuous variable
 - c) Discrete variable
 - d) Probability distributions for Continuous variables
30. High entropy means that the partitions in classification are
- a) pure
 - b) not pure
 - c) useful
 - d) useless
31. Supervised learning and unsupervised clustering both require which is correct according to the statement.
- a). output attribute.
 - b). hidden attribute.
 - c) input attribute.
 - d) categorical attribute
32. Which of the following is a correct categorical outcome?
- a). RMSE
 - b). Accuracy
 - c). Squared
 - d). Circle
33. Does the function provide unsupervised prediction which of the following is the correct statement?
- a). `cl_mprecast`
 - b). `cl_inowcast`
 - c). `cl_forecast`
 - d) `ml_forecast`
34. The library is used for boosting generalized additive models of __
- a). `ada`
 - b). `gbm`
 - c) `gdf`
 - d) `adm`

35. Which of the following is the best machine learning method?
- a). Non Scalable
 - b) Accuracy
 - c) Slow
 - d) Measurable
36. Which of the following function provides unsupervised prediction?
- a). cl_forecast
 - b). cl_nowcast
 - c) cl_precast
 - d) cl_docast.
37. What is Machine learning?
- a) The autonomous acquisition of knowledge through the use of computer programs
 - b) The autonomous acquisition of knowledge through the use of manual programs
 - c) The selective acquisition of knowledge through the use of computer programs
 - d) The selective acquisition of knowledge through the use of manual programs
38. Which of the factors affect the performance of learner system does not include?
- a) Representation scheme used
 - b) Training scenario
 - c) Type of feedback
 - d) Good data structures
39. Different learning methods does not include?
- a) Memorization
 - b) Analogy
 - c) Deduction
 - d) Introduction
40. In language understanding, the levels of knowledge that does not include?
- a) Phonological
 - b) Syntactic
 - c) Empirical
 - d) Logical
41. A model of language consists of the categories which does not include?

- a) Language units
- b) Role structure of units
- c) System constraints
- d) Structural units

42. What is a top-down parser?

- a) Begins by hypothesizing a sentence (the symbol S) and successively predicting lower level constituents until individual preterminal symbols are written
- b) Begins by hypothesizing a sentence (the symbol S) and successively predicting upper level constituents until individual preterminal symbols are written
- c) Begins by hypothesizing lower level constituents and successively predicting a sentence (the symbol S)
- d) Begins by hypothesizing upper level constituents and successively predicting a sentence (the symbol S)

43. Among the following which is not a horn clause?

- a) p
- b) $\emptyset p \vee q$
- c) $p \rightarrow q$
- d) $p \rightarrow \emptyset q$

44. The action 'STACK(A, B)' of a robot arm specify to _____

- a) Place block B on Block A
- b) Place blocks A, B on the table in that order
- c) Place blocks B, A on the table in that order
- d) Place block A on block B

45. What is Unsupervised learning?

- a) All data is unlabelled and the algorithms learn to inherent structure from the input data
- b) All data is labelled and the algorithms learn to predict the output from the input data
- c) It is a framework for learning where an agent interacts with an environment and receives a reward for each interaction
- d) Some data is labelled but most of it is unlabelled and a mixture of supervised and unsupervised techniques can be used.

46. What is Semi-Supervised learning?

- a) All data is unlabelled and the algorithms learn to inherent structure from the input data
- b) All data is labelled and the algorithms learn to predict the output from the input data
- c) It is a framework for learning where an agent interacts with an environment and receives

a reward for each interaction

d) Some data is labelled but most of it is unlabelled and a mixture of supervised and unsupervised techniques can be used.

47. What is Reinforcement learning?

a) All data is unlabelled and the algorithms learn to inherent structure from the input data

b) All data is labelled and the algorithms learn to predict the output from the input data

c) It is a framework for learning where an agent interacts with an environment and receives

a reward for each interaction

d) Some data is labelled but most of it is unlabelled and a mixture of supervised and unsupervised techniques can be used.

48. Sentiment Analysis is an example of:

1)Regression,

2)Classification

3)Clustering

4)Reinforcement Learning

Options:

a). 1 Only

b). 1 and 2

c). 1 and 3

d). 1, 2 and 4

49. Supervised learning and unsupervised clustering both require at least one

a) hidden attribute.

b) output attribute.

c) input attribute.

d) categorical attribute.

50. A nearest neighbor approach is best used

a) with large-sized datasets.

b) when irrelevant attributes have been removed from the data.

c) when a generalized model of the data is desirable.

d) when an explanation of what has been found is of primary importance.

UNIT 3

1. Reinforcement learning is-
 - A. Unsupervised learning
 - B. Supervised learning
 - C. Award based learning
 - D. semi supervised learning
2. Which of the following is an application of reinforcement learning?
 - A. Topic modeling
 - B. Recommendation system
 - C. Pattern recognition
 - D. Image classification
3. Upper confidence bound is a
 - A. Reinforcement algorithm
 - B. Supervised algorithm
 - C. Unsupervised algorithm
 - D. Semi supervised algorithm
4. Which of the following is true about reinforcement learning?
 - A. The agent gets rewards or penalty according to the action
 - B. It's an offline learning
 - C. The target of an agent is to minimize the rewards
 - D. The agent does not get rewards or penalty according to the action
5. You have a task which is to show relative ads to target users. Which algorithm you should use for this task?
 - A. K means clustering
 - B. Naive Bayes
 - C. Support vector machine
 - D. Upper confidence bound
6. Hidden Markov Model is used in-
 - A. Breadth first search
 - B. Best first search

C. Reinforcement learning

D. A* algorithm

7. Which algorithm is used in robotics and industrial automation?

A. Thompson sampling

B. Naive Bayes

C. Decision tree

D. EM algorithm

8. Thompson sampling is a-

A. Non-Probabilistic algorithm

B. Not Based on Bayes inference rule

C. Reinforcement learning algorithm

D. Decision Tree

9. Which of the following is false about Upper confidence bound?

A. It's a Deterministic algorithm

B. It allow delayed feedback

C. It is dose not based on Bayes inference

D. It is does not based on naïve bayes inference

10. The multi-armed bandit problem is a generalized use case for-

A. Reinforcement learning

B. Supervised learning

C. Unsupervised learning

D. Semi supervised learning

11. Which of the following is a clustering algorithm in machine learning?

a) Expectation Maximization

b) CART

c) Gaussian Naïve Bayes

d) Apriori

12. The model obtained by applying linear regression on the identified subset of features may differ from the model obtained at the end of the process of identifying the subset during

- a) Best-subset selection
- b) Forward stepwise selection
- c) Forward stage wise selection
- d) Backward stage wise selection

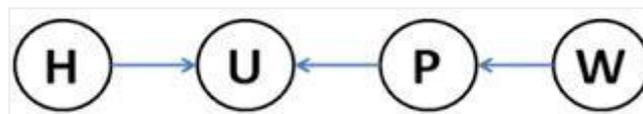
13. You trained a binary classifier model which gives very high accuracy on the training data, but much lower accuracy on validation data. Which of the following may be true?

- a) This is an instance of overfitting.
- b) This is an instance of underfitting.
- c) The training was not well regularized.
- d) The training and testing examples are sampled from different distributions.

14. What are support vectors?

- a) The examples farthest from the decision boundary.
- b) The only examples necessary to compute $f(x)$ in an SVM.
- c) The class centroids.
- d) All the examples that have a non-zero weight α_k in a SVM.

15. Which of the following is the joint probability of H, U, P, and W described by the given Bayesian Network? [note: as the product of the conditional probabilities]



- a) $P(H, U, P, W) = P(H) * P(W) * P(P) * P(U)$
- b) $P(H, U, P, W) = P(H) * P(W) * P(P | W) * P(W | H, P)$
- c) $P(H, U, P, W) = P(H) * P(W) * P(P | W) * P(U | H, P)$
- d) $P(H, U, P, W) = P(H) * P(W) * P(P | W) / P(W | H, P)$

16. High entropy means that the partitions in classification are

- a) pure
- b) not pure
- c) useful
- d) useless

17. A machine learning problem involves four attributes plus a class. The attributes have 3, 2, 2, and 2 possible values each. The class has 3 possible values. How many maximum possible different examples are there?

- a) 12
- b) 24
- c) 48
- d) 72

18. Which of the following is NOT supervised learning?

- a) PCA
- b) Decision Tree
- c) Linear Regression
- d) Naive Bayesian

19. Which of the following statements about Naive Bayes is incorrect?

- a) Attributes are equally important.
- b) Attributes are statistically dependent of one another given the class value.
- c) Attributes are statistically independent of one another given the class value.
- d) Attributes can be nominal or numeric

20. Suppose we would like to perform clustering on spatial data such as the geometrical locations of houses. We wish to produce clusters of many different sizes and shapes. Which of the following methods is the most appropriate?

- a) Decision Trees

b) Density-based clustering

c) Model-based clustering

d) K-means clustering