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Top 50 Artificial Intelligence Interview Questions & Answers

1)   What is Artificial Intelligence?

Artificial Intelligence is an area of computer science that emphasizes the creation of intelligent machine that work and reacts like humans.

2)   What is an artificial intelligence Neural Networks?

Artificial intelligence Neural Networks can model mathematically the way biological brain works, allowing the machine to think and learn the same way the humans do- making them capable of recognizing things like speech, objects and animals like we do.

3)   What are the various areas where AI (Artificial Intelligence) can be used?

Artificial Intelligence can be used in many areas like Computing, Speech recognition, Bio-informatics, Humanoid robot, Computer software, Space and Aeronautics's etc.

4)   Which is not commonly used programming language for AI?

Perl language is not commonly used programming language for AI

5)   What is Prolog in AI?

In AI, Prolog is a programming language based on logic.

6)   Give an explanation on the difference between strong AI and weak AI?

Strong AI makes strong claims that computers can be made to think on a level equal to humans while weak AI simply predicts that some features that are resembling to human intelligence can

be incorporated to computer to make it more useful tools.

7)   Mention the difference between statistical AI and Classical AI ?

Statistical AI is more concerned with "inductive" thought like given a set of pattern, induce the trend etc. While, classical AI, on the other hand, is more concerned with " deductive" thought given as a set of constraints, deduce a conclusion etc.

8)   What is alternate, artificial, compound and natural key?

Alternate Key: Excluding primary keys all candidate keys are known as Alternate Keys.

Artificial Key: If no obvious key either stands alone or compound is available, then the last resort is to, simply create a key, by assigning a number to each record or occurrence. This is known as artificial key.

Compound Key: When there is no single data element that uniquely defines the occurrence within a construct, then integrating multiple elements to create a unique identifier for the construct is known as Compound Key.

Natural Key: Natural key is one of the data element that is stored within a construct, and which is utilized as the primary key.

9)   What does a production rule consist of?

The production rule comprises of a set of rule and a sequence of steps.

10)   Which search method takes less memory?

The "depth first search" method takes less memory.

11)   Which is the best way to go for Game playing problem?

Heuristic approach is the best way to go for game playing problem, as it will use the technique based on intelligent guesswork. For example, Chess between humans and computers as it will use brute force computation, looking at hundreds of thousands of positions.

12)   A* algorithm is based on which search method?

A* algorithm is based on best first search method, as it gives an idea of optimization and quick choose of path, and all characteristics lie in A* algorithm.

13)   What does a hybrid Bayesian network contain?

A hybrid Bayesian network contains both a discrete and continuous variables.

14) What is agent in artificial intelligence?

Anything perceives its environment by sensors and acts upon an environment by effectors are known as Agent. Agent includes Robots, Programs, and Humans etc.

15) What does Partial order or planning involve?

In partial order planning , rather than searching over possible situation it involves searching over the space of possible plans. The idea is to construct a plan piece by piece.

16) What are the two different kinds of steps that we can take in constructing a plan?

a)   Add an operator (action)

b)   Add an ordering constraint between operators

17) Which property is considered as not a desirable property of a logical rule-based system?

"Attachment" is considered as not a desirable property of a logical rule based system.

18) What is Neural Network in Artificial Intelligence?

In artificial intelligence, neural network is an emulation of a biological neural system, which receives the data, process the data and gives the output based on the algorithm and empirical data.

19) When an algorithm is considered completed?

An algorithm is said completed when it terminates with a solution when one exists.

20) What is a heuristic function?

A heuristic function ranks alternatives, in search algorithms, at each branching step based on the available information to decide which branch to follow.

21) What is the function of the third component of the planning system?

In a planning system, the function of the third component is to detect when a solution to problem has been found.

22) What is "Generality" in AI ?

Generality is the measure of ease with which the method can be adapted to different domains of application.

23) What is a top-down parser?

A top-down parser begins by hypothesizing a sentence and successively predicting lower level constituents until individual pre-terminal symbols are written.

24) Mention the difference between breadth first search and best first search in artificial intelligence?

These are the two strategies which are quite similar. In best first search, we expand the nodes in accordance with the evaluation function. While, in breadth first search a node is expanded in accordance to the cost function of the parent node.

25) What are frames and scripts in "Artificial Intelligence"?

Frames are a variant of semantic networks which is one of the popular ways of presenting non-procedural knowledge in an expert system. A frame which is an artificial data structure is used to divide knowledge into substructure by representing "stereotyped situations'. Scripts are similar to frames, except the values that fill the slots must be ordered. Scripts are used in natural language understanding systems to organize a knowledge base in terms of the situation that the system should understand.

26) What is FOPL stands for and explain its role in Artificial Intelligence?

FOPL stands for First Order Predicate Logic, Predicate Logic provides

a)   A language to express assertions about certain "World"

b)   An inference system to deductive apparatus whereby we may draw conclusions from such assertion

c)   A semantic based on set theory

27) What does the language of FOPL consists of

a)   A set of constant symbols

b)   A set of variables

c)   A set of predicate symbols

d)   A set of function symbols

e)   The logical connective

f)   The Universal Quantifier and Existential Qualifier

g)   A special binary relation of equality

28) For online search in 'Artificial Intelligence' which search agent operates by interleaving computation and action?

In online search, it will first take action and then observes the environment.

29) Which search algorithm will use a limited amount of memory in online search?

RBFE and SMA* will solve any kind of problem that A* can't by using a limited amount of memory.

30) In 'Artificial Intelligence' where you can use the Bayes rule?

In Artificial Intelligence to answer the probabilistic queries conditioned on one piece of evidence, Bayes rule can be used.

31) For building a Bayes model how many terms are required?

For building a Bayes model in AI, three terms are required; they are one conditional probability and two unconditional probability.

32) While creating Bayesian Network what is the consequence between a node and its predecessors?

While creating Bayesian Network, the consequence between a node and its predecessors is that a node can be conditionally independent of its predecessors.

33) To answer any query how the Bayesian network can be used?

If a Bayesian Network is a representative of the joint distribution, then by summing all the relevant joint entries, it can solve any query.

34) What combines inductive methods with the power of first order representations?

Inductive logic programming combines inductive methods with the power of first order representations.

35) In Inductive Logic Programming what needed to be satisfied?

The objective of an Inductive Logic Programming is to come up with a set of sentences for the hypothesis such that the entailment constraint is satisfied.

36) In top-down inductive learning methods how many literals are available? What are they?

There are three literals available in top-down inductive learning methods they are

a)   Predicates

b)   Equality and Inequality

c)   Arithmetic Literals

37) Which algorithm inverts a complete resolution strategy?

'Inverse Resolution' inverts a complete resolution, as it is a complete algorithm for learning first order theories.

38) In speech recognition what kind of signal is used?

In speech recognition, Acoustic signal is used to identify a sequence of words.

39) In speech recognition which model gives the probability of each word following each word?

Biagram model gives the probability of each word following each other word in speech recognition.

40)   Which algorithm is used for solving temporal probabilistic reasoning?

To solve temporal probabilistic reasoning, HMM (Hidden Markov Model) is used, independent of transition and sensor model.

41)   What is Hidden Markov Model (HMMs) is used?

Hidden Markov Models are a ubiquitous tool for modelling time series data or to model sequence behaviour. They are used in almost all current speech recognition systems.

42)   In Hidden Markov Model, how does the state of the process is described?

The state of the process in HMM's model is described by a 'Single Discrete Random Variable'.

43)   In HMM's, what are the possible values of the variable?

'Possible States of the World' is the possible values of the variable in HMM's.

44)   In HMM, where does the additional variable is added?

While staying within the HMM network, the additional state variables can be added to a temporal model.

45) In Artificial Intelligence, what do semantic analyses used for?

In Artificial Intelligence, to extract the meaning from the group of sentences semantic analysis is used.

46) What is meant by compositional semantics?

The process of determining the meaning of P*Q from P,Q and* is known as Compositional Semantics.

47) How logical inference can be solved in Propositional Logic?

In Propositional Logic, Logical Inference algorithm can be solved by using

a)   Logical Equivalence

b)   Validity

c)   Satisfying ability

48) Which process makes different logical expression looks identical?

'Unification' process makes different logical expressions identical. Lifted inferences require finding substitute which can make a different expression looks identical. This process is called unification.

49) Which algorithm in 'Unification and Lifting' takes two sentences and returns a unifier?

In 'Unification and Lifting' the algorithm that takes two sentences and returns a unifier is 'Unify' algorithm.

50) Which is the most straight forward approach for planning algorithm?

State space search is the most straight forward approach for planning algorithm because it takes account of everything for finding a solution.