**1. What is Artificial Intelligence?**

[**Artificial Intelligence**](https://intellipaat.com/blog/what-is-artificial-intelligence/) is a field of computer science wherein the cognitive functions of the human brain are studied and tried to be replicated on a machine/system. Artificial Intelligence is today widely used for various applications like computer vision, speech recognition, decision-making, perception, reasoning, cognitive capabilities, and so on.

### ****2. What is an A\* algorithm search method?****

A\* is a computer algorithm that is extensively used for the purpose of finding the path or traversing a graph in order to find the most optimal route between various points called the nodes.

### ****3. What is a breadth-first search algorithm?****

A breadth-first search (BFS) algorithm, used for searching tree or graph data structures, starts from the root node, then proceeds through neighboring nodes, and further moves toward the next level of nodes.

### ****4. What is a depth-first search algorithm?****

Depth-first search (DFS) is based on LIFO (last-in, first-out). A recursion is implemented with the LIFO stack data structure. Thus, the nodes are in a different order than in BFS. The path is stored in each iteration from root to leaf nodes in a linear fashion with space requirement.

### ****5. What is a bidirectional search algorithm?****

In a bidirectional search algorithm, the search begins forward from the beginning state and in reverse from the objective state. The searches meet to identify a common state. The initial state is linked with the objective state in a reverse way. Each search is done just up to half of the aggregate way.

### ****6. What is an iterative deepening depth-first search algorithm?****

The repetitive search processes of level 1 and level 2 happen in this search. The search processes continue until the solution is found. Nodes are generated until a single goal node is created. The stack of nodes is saved.

### ****7. What is a uniform cost search algorithm?****

The uniform cost search performs sorting in increasing the cost of the path to a node. It expands the least cost node. It is identical to BFS if each iteration has the same cost. It investigates ways in the expanding order of cost.

### ****8. Explain Alpha–Beta pruning.****

Alpha–Beta pruning is a search algorithm that tries to reduce the number of nodes that are searched by the minimax algorithm in the search tree. It can be applied to ‘n’ depths and can prune the entire subtrees and leaves.

### ****9. What is FOPL?****

First-order predicate logic is a collection of formal systems, where each statement is divided into a subject and a predicate. The predicate refers to only one subject, and it can either modify or define the properties of the subject.

**10.What is machine Learning and its types?**

**Machine Learning:** Machine Learning is a subset of Artificial Intelligence and is mainly used to improve computer programs through experience and training on different models. There are three main methods of Machine Learning:

[**Supervised Learning**](https://intellipaat.com/blog/what-is-supervised-learning/):  In supervised learning, the machine gets the input for twitch the output is already known. After the processing is completed, the algorithm compared the output produced from the original output and measure the degree of errors in it.

**Unsupervised Learning:** Here, the instructor has no output or historical labels for the input data. So, the algorithm is expected to figure out the right path and extract the features from the given dataset. The goal is to allow the algorithm to search the data and s some structure in it.

**Reinforcement Learning:**  In this method of learning there are three components, the agent, environment, and actions. An agent is a decision-maker whose goal is to choose the right actions and maximize the expected reward within a set timeframe. [Reinforcement learning](https://intellipaat.com/blog/what-is-reinforcement-learning/) is mainly used in robotics where the machine learns about the environment through trial and error.

**11.What is the n-queens problem in machine learning?**

N - Queens problem is to place n - queens in such a manner on an n x n chessboard that no queens attack each other by being in the same row, column or diagonal. It can be seen that for n =1, the problem has a trivial solution, and no solution exists for n =2 and n =3.

**12.What is forward chaining?**

Forward chaining is a form of reasoning that starts with simple facts in the knowledge base and applies inference rules in the forward direction to extract more data until a goal is reached.

**13.What is backward chaining?**

Backward chaining starts with the goal and works backward, chaining through rules to find known facts that support the goal.

**14.What is KNN?**

The k-nearest neighbors (KNN) algorithm is a non-parametric, supervised learning classifier, which uses proximity to make classifications or predictions about the grouping of an individual data point. It is one of the popular and simplest classification and regression classifiers used in machine learning today.

### ****15. What is Naive Bayes?****

Naive Bayes Machine Learning algorithm is a powerful algorithm for predictive modeling. It is a set of algorithms with a common principle based on the Bayes Theorem. The fundamental Naive Bayes assumption is that each feature makes an independent and equal contribution to the outcome.

**16.What is SVM?**

Support Vector Machine (SVM) is a [supervised machine learning](https://www.geeksforgeeks.org/supervised-unsupervised-learning/) algorithm used for both classification and regression. Though we say regression problems as well it’s best suited for classification. The main objective of the SVM algorithm is to find the optimal [hyperplane](https://www.geeksforgeeks.org/separating-hyperplanes-in-svm/) in an N-dimensional space that can separate the data points in different classes in the feature space.

**17.What is linear regression?**

Linear regression is a type of [supervised machine learning](https://www.geeksforgeeks.org/supervised-machine-learning/) algorithm that computes the linear relationship between the dependent variable and one or more independent features by fitting a linear equation to observed data.

**18.What is Training data?**

Training data, also referred to as a training set or learning set, is an input dataset used to train a machine learning model.

## 19.What is a Testing Dataset?

## The [testing dataset](https://deepchecks.com/glossary/test-set-in-machine-learning/?trk=article-ssr-frontend-pulse_little-text-block) is used to perform a realistic check on an algorithm. It confirms if the ML model is accurate and can be used in the forecast and predictive analyses.

**20.What is Confusion matrix?**

A confusion matrix is a performance evaluation tool in machine learning, representing the accuracy of a classification model. It displays the number of true positives, true negatives, false positives, and false negatives.

**21.What is Precision?**

Precision is one indicator of a machine learning model's performance – the quality of a positive prediction made by the model.

**22.whatRecall?**   
Recall is a metric that measures how often a machine learning model correctly identifies positive instances (true positives) from all the actual positive samples in the dataset

**23.What is F1- score?**

F1 score is a measure of the harmonic mean of precision and recall.

**24.what is support?**

Support is the number of actual occurrences of the class in the specified dataset.