# **Artificial Intelligence Questions**

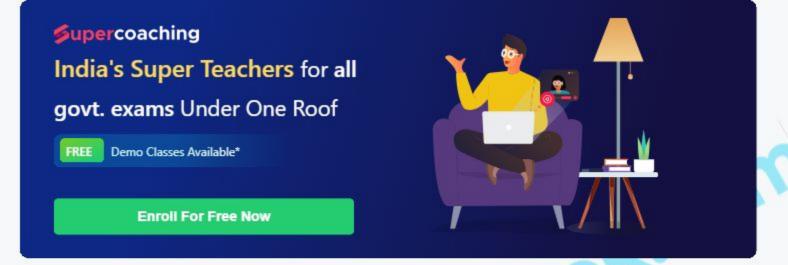
# Latest Artificial Intelligence MCQ Objective Questions



# Question 1: View this Question Online > Which of the following can the Decision trees NOT be used for? 1. Regression 2. Classification 3. Clustering 4. Reinforcement learning 5. None of the above/More than one of the above

Answer (Detailed Solution Below)

Option 3 : Clustering



#### Artificial Intelligence Question 1 Detailed Solution



- Decision Trees (DTs) are a non-parametric supervised learning method used for classification and regression. The goal is to create a model that predicts the value of a target variable by learning simple decision rules inferred from the data features.
- Decision trees can also be used to form clusters in the data but clustering often generates natural clusters and is not dependent on any objective function.
- Decision tree-based reinforcement learning provides good learning performance and meets our needs for more reliable convergence than the neural network approach. It also has lower memory requirements than the table lookup method and scales better to large input spaces.

Hence the correct answer is Clustering.

# 🍌 Additional Information

- A classification algorithm is a Supervised Learning technique that is used to identify the
  category of new observations on the basis of training data. In Classification, a program learns
  from the given dataset or observations and then classifies new observations into a number of
  classes or groups.
- Regression analysis consists of a set of machine learning methods that allow us to predict a
  continuous outcome variable (y) based on the value of one or multiple predictor variables (x).
  It assumes a linear relationship between the outcome and the predictor variables.



#### Question 2:

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Which of the following characteristics refers to the use of technology to complete a task with as little human interaction as possible?

Remembrance power

2. No EQ

No 10

4. Automation

#### Answer (Detailed Solution Below)

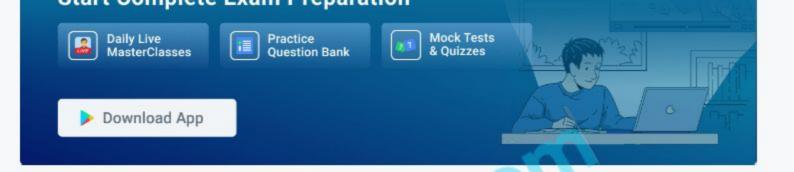
Option 4: Automation

#### Artificial Intelligence Question 2 Detailed Solution

The correct answer is Automation

# Key Points

- COM Automation, in general, is the technology by which a process or procedure is performed without human assistance. It is implemented in different fields such as manufacturing, transportation, utilities, defense, facilities, operations, and recently, in information technology.
- In automation, automatic control is used, which is the use of various control systems for operating equipment with minimal or reduced human intervention. For example, machinery on an assembly line can be automated to perform tasks without the need for human/manual operation.
- Some of the key characteristics of automation include:
  - Reduced Labor: Automation is commonly associated with reducing manual labor. Tasks that were once carried out by humans are programmed into a system, and machines perform these tasks without human intervention.
  - · Consistency and Quality: Automated tasks typically produce consistent and highquality results because machines are able to perform the same action in the exact same way every time, reducing the risk of errors that can occur with manual labor.
  - Speed and Efficiency: Machines can typically perform tasks faster than humans without getting tired. With automation, companies can drastically increase their production speeds and operate 24/7 if necessary.
  - · Safety: It can replace humans in tasks that are dangerous or require working in hazardous conditions, improving workplace safety.



#### Question 3:

View this Question Online >

Which of the following algorithm is related to Artificial Intelligence?

- 1. Routing algorithm
- Greedy Algorithms
- 3. Hill Climbing Algorithm
- 4. Recursive algorithm

# Answer (Detailed Solution Below)

Option 3: Hill Climbing Algorithm

# Artificial Intelligence Question 3 Detailed Solution

The correct answer is **option 3**.

# Concept:

# Hill-climbing algorithm:

A **hill-climbing algorithm** is a type of Artificial Intelligence (AI) algorithm that constantly improves in value until it reaches a peak solution. This method is used to solve mathematical issues as well as in real-world applications such as marketing and scheduling.

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- The hill-climbing algorithm is a local search algorithm that proceeds in the direction of rising elevation/value in order to discover the mountain's peak or the best solution to the issue.
   When it hits a peak value, it stops since no neighbor has a greater value.
- Hill Climbing is mostly used when a good heuristic is available.
- It's also known as greedy local search since it just considers its good nearby neighbor state and nothing else.

Hence the correct answer is Hill Climbing Algorithm.



#### Question 4:

#### View this Question Online >

Use of internet to connect a wide variety of devices, machines and sensors for empowering brick and mortar stores by giving them the same access to data that online stores have is a facility falls under which of the following technologies?

- 1. Artificial Intelligence
- 2. Deep Learning
- Machine Learning
- 4. Internet of Thing

# Answer (Detailed Solution Below)

Option 4: Internet of Thing

# Artificial Intelligence Question 4 Detailed Solution

 The Internet of Things (IoT) refers to the interconnected network of physical devices, machines, and sensors that are embedded with electronics, software, and sensors, and can collect and exchange data over the internet.

 In the context of brick and mortar stores, IoT can be used to connect a variety of devices and sensors, such as smart shelves, cameras, and customer mobile devices, to provide access to data in real-time. This can empower brick and mortar stores by giving them the same access to data that online stores have, such as tracking inventory levels, customer behavior, and sales trends, allowing them to make informed decisions and provide a better shopping experience for their customers.

 Artificial Intelligence - Al refers to the development of computer systems that can perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and language translation.

 Deep Learning - Deep learning is a type of machine learning that uses artificial neural networks with multiple layers to model and solve complex problems. It is a subset of AI and is used for tasks such as image and speech recognition.

 Machine Learning - Machine learning is a subfield of artificial intelligence that involves the development of algorithms and models that allow computers to learn from data, make predictions, and improve over time without being explicitly programmed.



#### Question 5:

#### View this Question Online >

What is meant by a "Complete Algorithm"?

1.

It will find the solution in a finite amount of time

- 2. If a solution exists, the algorithm will find it before terminating
- 3. Both A and B
- 4. None of above

#### Answer (Detailed Solution Below)

Option 3: Both A and B

#### Artificial Intelligence Question 5 Detailed Solution

The correct answer is option 3.

#### Concept:

#### Complete Algorithm:

If an algorithm is complete, it guarantees that it will find a solution in a finite amount of time if at least one solution exists or If a solution exists, the algorithm will find it before terminating.

Here are some characteristics of complete algorithms and the results they produce:

#### Termination:

No matter how big the search space is, the calculation is guaranteed to end.

#### Completeness:

If an algorithm concludes with a solution when one exists, it is said to be complete. By definition, yes. Finding the best answer necessitates establishing that it is the best. This may be accomplished by either finding all solutions or demonstrating that no solution can be cheaper than the one already discovered. At least one solution must be identified in both circumstances.

Hence the correct answer is Both A and B.

# Top Artificial Intelligence MCQ Objective Questions



# Question 6 View this Question Online > Which of the following languages is suitable for artificial intelligence? 1. Fortran 2. Basic 3. Prolog 4. 'C'

Option 3: Prolog

#### Artificial Intelligence Question 6 Detailed Solution

The Correct Answer: Prolog is a general-purpose programming language associated with artificial intelligence and computational linguistics.

All of the listed languages can be used to implement some form of AI, but each one is suitable
for different aspects of AI.

# Key Points

- Fortran: It's an old language typically used for numerical and scientific computing. It's not
  commonly used for modern AI applications but can still be used if necessary, especially for
  tasks that require heavy numerical computations.
- Basic: It's a beginner-friendly language. Though it's not typically used for AI applications due
  to the lack of advanced data structures and libraries, it can be used to implement simple AI
  systems.
- Prolog: It's a logic programming language often associated with AI, especially in the domain of
  expert systems, natural language processing, and knowledge representation. It supports
  pattern matching and automatic backtracking, which are powerful for these types of tasks.
- 'C': It's a low-level, general-purpose language. It can be used for AI development, but it might
  not be the most efficient choice. It lacks the high-level abstractions and libraries (such as
  TensorFlow or PyTorch) that Python provides, which are commonly used in AI.

Out of these options, Prolog is likely the most directly associated with Al.

### Additional Information

However, it should be noted that in current AI development, Python is by far the most widely used language due to its simplicity, flexibility, and the broad ecosystem of AI and machine learning libraries available. Other languages like Java, R, and Julia are also often used.



Question 7

View this Question Online >

Use of internet to connect a wide variety of devices, machines and sensors for empowering brick and mortar stores by giving them the same access to data that online stores have is a facility falls under which of the following technologies?

Artificial Intelligence
 Deep Learning
 Machine Learning
 Internet of Thing

#### Answer (Detailed Solution Below)

Option 4 : Internet of Thing

## Artificial Intelligence Question 7 Detailed Solution

 The Internet of Things (IoT) refers to the interconnected network of physical devices, machines, and sensors that are embedded with electronics, software, and sensors, and can collect and exchange data over the internet.

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- In the context of brick and mortar stores, IoT can be used to connect a variety of devices and sensors, such as smart shelves, cameras, and customer mobile devices, to provide access to data in real-time. This can empower brick and mortar stores by giving them the same access to data that online stores have, such as tracking inventory levels, customer behavior, and sales trends, allowing them to make informed decisions and provide a better shopping experience for their customers.
- Artificial Intelligence Al refers to the development of computer systems that can perform
  tasks that normally require human intelligence, such as visual perception, speech recognition,
  decision-making, and language translation.
- Deep Learning Deep learning is a type of machine learning that uses artificial neural networks with multiple layers to model and solve complex problems. It is a subset of AI and is used for tasks such as image and speech recognition.
- Machine Learning Machine learning is a subfield of artificial intelligence that involves the development of algorithms and models that allow computers to learn from data, make predictions, and improve over time without being explicitly programmed.



#### Question 8

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Which of the following is NOT true in problem solving in artificial intelligence?

- 1. Implements heuristic search techniques
- 2. Solution steps are not explicit
- 3. Knowledge is imprecise
- 4. It works on or implements repetition mechanism

#### Answer (Detailed Solution Below)

Option 4: It works on or implements repetition mechanism

# Artificial Intelligence Question 8 Detailed Solution

The correct answer is option 4.

# Key Points

- Heuristic search is a search technique that seeks to solve a problem by iteratively enhancing the solution using a heuristic function or a cost analysis. Heuristic search is two types. Direct Heuristic Search Techniques in Al (Breadth-First Search (BFS) and Depth First Search (DFS).) and Weak Heuristic Search Techniques in Al (Best-First Search, A\* Search, etc)
- Every AI program has to do the process of searching for the solution steps that are not explicit in nature.
- knowledge plays a vital role in intelligence as well as creating artificial intelligence.
- .. Hence the incorrect statement is It works on or implements a repetition mechanism.



#### Question 9

View this Question Online >

In Artificial Intelligence (AI), an environment is uncertain if it is.

- Not fully observable and not deterministic
- Not fully observable or not deterministic
- Fully observable but not deterministic
- 4. Not fully observable but deterministic

#### Answer (Detailed Solution Below)

Option 2: Not fully observable or not deterministic

#### Artificial Intelligence Question 9 Detailed Solution

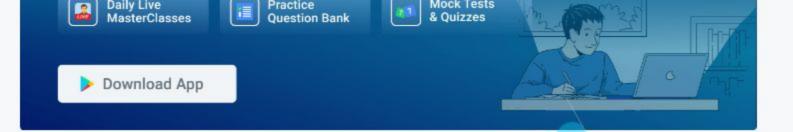
In artificial intelligence, environment is that surrounds an agent. Environment is where agent lives, do its work or we can say that surrounding in which agent is present.

Environment is clearly distinguishable from the agent, it is not the part of the agent. An environment can have various attributes from the point of view of the agent. These are :

- Observable and partially observable: An agent is considered to be an agent only if it has the
  ability to observe its environment. In some cases, environment may be partially observable.
  Uncertain environment is not fully observable.
- 2) Deterministic and stochastic: A deterministic environment is one where any future state of the environment can be completely determines from preceding state and actions of agent. It is stochastic if there is some element of uncertainty.
- Episodic and sequential: If each of agent's tasks do not rely on past performance than episodic otherwise it is sequential.

4)

**Discrete and continuous:** A discrete environment has finite number of possible states whereas number of states in continuous environment is infinite.



# Question 10 An agent can improve its performance by 1. Learning 2. Responding 3. Observing 4. Perceiving

#### Answer (Detailed Solution Below)

Option 1 : Learning

# Artificial Intelligence Question 10 Detailed Solution

#### Concept:

Agent: An agent is anything that can be viewed as perceiving its environment through sensors and acting upon that environment through actuators. Example: human agents, robotic agents etc.

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Agent is also equal to architecture and program combination.

#### Explanation:

Factors that are considered in agents are its performance measure, environment, actuators, sensors.

- · Performance: safe, fast, legal, maximize profits.
- Environment: Roads, pedestrians, customers
- Actuators: steering wheel, accelerator, brake.
- · Sensors: Cameras, speedometer, GPS, keyboard.

Environment types: fully observable, deterministic, static, dynamic, single agent, semi dynamic.

Agents observes through sensor and directs activity towards achieving goals. Agents improves its performance by learning to achieve its goals. A reflex machine is an example of an intelligent agent. All agent must have ability to perceive the environment.



#### Question 11

View this Question Online >

In Artificial Intelligence (AI), a simple reflex agent selects actions on the basis of.

- current percept, completely ignoring rest of the percept history.
- 2. rest of the percept history, completely ignoring current percept.
- 3. both current percept and complete percept history.
- both current percept and just previous percept.

#### Answer (Detailed Solution Below)

Option 1: current percept, completely ignoring rest of the percept history.

#### Artificial Intelligence Question 11 Detailed Solution

#### Concept:

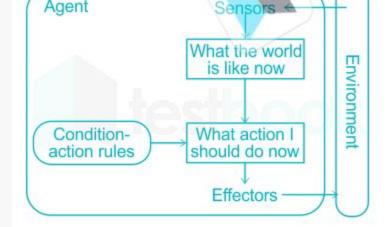
Agent represent the most important new paradigm for software development. An autonomous agent is a system situated within and a part of an environment that senses the environment and acts on it.

#### Explanation:

An agent is situated in environment and makes its own decisions, it perceives the environment through sensors and acts on the environment through actuators.

Simple reflex agents selects actions based on the agents current perception or the world and not based on past perceptions. They work when environment if fully observable. It is based on condition action rule which means it maps a state with an action.

# Diagram:





#### Question 12:

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Which of the following languages is suitable for artificial intelligence?

1. Fortran

2. Basic

3. Prolog

4 'C

#### Answer (Detailed Solution Below)

Option 3: Prolog

# Artificial Intelligence Question 12 Detailed Solution

The Correct Answer: Prolog is a general-purpose programming language associated with artificial intelligence and computational linguistics.

 All of the listed languages can be used to implement some form of AI, but each one is suitable for different aspects of Al.

# Key Points

- · Fortran: It's an old language typically used for numerical and scientific computing. It's not commonly used for modern AI applications but can still be used if necessary, especially for tasks that require heavy numerical computations.
- Basic: It's a beginner-friendly language. Though it's not typically used for AI applications due to the lack of advanced data structures and libraries, it can be used to implement simple AI
- · Prolog: It's a logic programming language often associated with AI, especially in the domain of expert systems, natural language processing, and knowledge representation. It supports pattern matching and automatic backtracking, which are powerful for these types of tasks.
- 'C': It's a low-level, general-purpose language. It can be used for AI development, but it might not be the most efficient choice. It lacks the high-level abstractions and libraries (such as TensorFlow or PyTorch) that Python provides, which are commonly used in Al.

Out of these options, Prolog is likely the most directly associated with Al.



# Additional Information

However, it should be noted that in current AI development, Python is by far the most widely used language due to its simplicity, flexibility, and the broad ecosystem of AI and machine learning libraries available. Other languages like Java, R, and Julia are also often used.



#### Question 13:

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Who among the following is known as the father of Artificial Intelligence (AI)?

- 1. Fisher Ada
- Allen Newell
- John McCarthy
- 4. None of the above

# Answer (Detailed Solution Below)

Option 3: John McCarthy

# Artificial Intelligence Question 13 Detailed Solution

The correct answer is John McCarthy.



#### · John McCarthy:

- He was an American mathematician and computer scientist who was a pioneer in the field of artificial intelligence (AI); his main research in the field involved the formalization of common-sense knowledge.
- McCarthy coined the term artificial intelligence in 1955, and he created the computer programming language LISP in 1958.
- LISP was initially used primarily by the AI community owing to its great flexibility due to
  its expressive power.

#### Artificial Intelligence (AI):

 It is the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decisionmaking, and translation between languages.



#### Question 14:

View this Question Online >

What is meant by a "Complete Algorithm"?

1.

It will find the solution in a finite amount of time

2. If a solution exists, the algorithm will find it before terminating

3. Both A and B

4. None of above

#### Answer (Detailed Solution Below)

Option 3: Both A and B

#### Artificial Intelligence Question 14 Detailed Solution

The correct answer is option 3.

#### Concept:

#### Complete Algorithm:

If an algorithm is complete, it guarantees that it will find a solution in a finite amount of time if at least one solution exists or If a solution exists, the algorithm will find it before terminating.

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#### Here are some characteristics of complete algorithms and the results they produce:

#### Termination:

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#### Completeness:

If an algorithm concludes with a solution when one exists, it is said to be complete. By definition, yes. Finding the best answer necessitates establishing that it is the best. This may be accomplished by either finding all solutions or demonstrating that no solution can be cheaper than the one already discovered. At least one solution must be identified in both circumstances.

Hence the correct answer is Both A and B.



#### Question 15:

View this Question Online >

	3 31		
1. 5			
2. 3	16		
3. 2			
4. 1			

### Answer (Detailed Solution Below)

Option 2:3

#### Artificial Intelligence Question 15 Detailed Solution

How many types of recognition are there in Al?

The correct answer is option 2.

#### Concept:

Artificial intelligence (AI) is the capacity of a computer or a robot controlled by a computer to do activities that normally require human intelligence and judgment.

The three types of recognition are,

#### Biometric identification:

Biometric technology automatically identifies persons based on physical traits such as voice tone or hand shape. Computers may utilize behaviors like handwriting style in this way as well.

#### Content-based image retrieval:

The application of computer vision techniques to the image retrieval issue, that is, the challenge of searching for digital pictures in huge databases, is known as content-based image retrieval, also known as query by image content, and content-based visual information retrieval.

# Handwriting recognition:

Handwriting recognition (HWR), also known as Handwriting Text Recognition (HTR), is the capacity of a computer to recognize and interpret understandable handwritten input from a variety of sources, including paper documents, pictures, touch displays, and other devices.

#### Hence the correct answer is 3.