



RAMA UNIVERSITY

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FACULTY OF ENGINEERING

ARTIFICIAL INTELLIGENCE LECTURE-07

Mr. Dharendra

Assistant Professor

Computer Science & Engineering

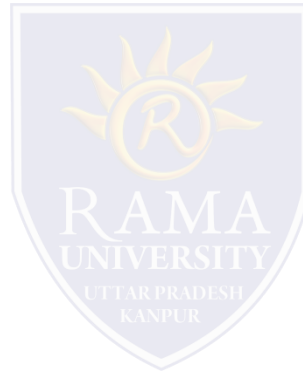
OUTLINE

- ❖ **Agent Environment in AI**
- ❖ **Features of Environment**
- ❖ **Fully observable vs Partially Observable**
- ❖ **Deterministic vs Stochastic**
- ❖ **Episodic vs Sequential**
- ❖ **Static vs Dynamic**
- ❖ **Discrete vs Continuous**
- ❖ **Known vs Unknown**
- ❖ **Accessible vs Inaccessible**
- ❖ **MCQ**
- ❖ **References**



Agent Environment in AI

- An environment is everything in the world which surrounds the agent, but it is not a part of an agent itself. An environment can be described as a situation in which an agent is present.
- The environment is where agent lives, operate and provide the agent with something to sense and act upon it. An environment is mostly said to be non-feministic.



Features of Environment

- Fully observable vs Partially Observable
- Static vs Dynamic
- Discrete vs Continuous
- Deterministic vs Stochastic
- Single-agent vs Multi-agent
- Episodic vs sequential
- Known vs Unknown
- Accessible vs Inaccessible



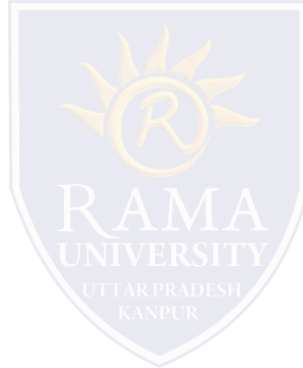
Fully observable vs Partially Observable

- If an agent sensor can sense or access the complete state of an environment at each point of time then it is a fully observable environment, else it is partially observable.
- A fully observable environment is easy as there is no need to maintain the internal state to keep track history of the world.
- An agent with no sensors in all environments then such an environment is called as unobservable.



Deterministic vs Stochastic

- If an agent's current state and selected action can completely determine the next state of the environment, then such environment is called a deterministic environment.
- A stochastic environment is random in nature and cannot be determined completely by an agent.
- In a deterministic, fully observable environment, agent does not need to worry about uncertainty.



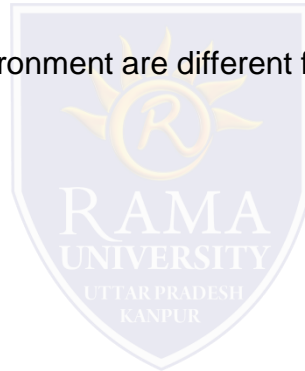
Episodic vs Sequential

- In an episodic environment, there is a series of one-shot actions, and only the current percept is required for the action.
- However, in Sequential environment, an agent requires memory of past actions to determine the next best actions.



Single-agent vs Multi-agent

- If only one agent is involved in an environment, and operating by itself then such an environment is called single agent environment.
- However, if multiple agents are operating in an environment, then such an environment is called a multi-agent environment.
- The agent design problems in the multi-agent environment are different from single agent environment.



1. External actions of the agent is selected by _____

- a) Perceive
- b) Performance
- c) Learning
- d) Actuator

2. The action of the Simple reflex agent completely depends upon _____

- a) Perception history
- b) Current perception
- c) Learning theory
- d) Utility functions



3. Which of the following could be the approaches to Artificial Intelligence?

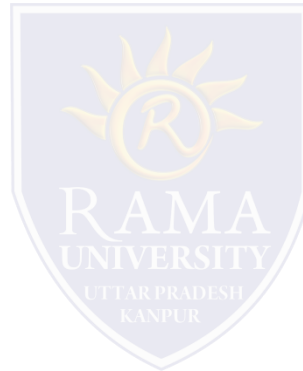
- a) Strong Artificial Intelligence
- b) Weak Artificial Intelligence
- c) Applied Artificial Intelligence
- d) All of the mentioned

4. An Artificial Neural Network Is based on?

- a) Strong Artificial Intelligence approach
- b) Weak Artificial Intelligence approach
- c) Cognitive Artificial Intelligence approach
- d) Applied Artificial Intelligence approach

5. The Face Recognition system is based on?

- a) Strong Artificial Intelligence approach
- b) Weak Artificial Intelligence approach
- c) Cognitive Artificial Intelligence approach
- d) Applied Artificial Intelligence approach



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