**Question 01: Hide-and-Seek Game**

* **Performance measure:** Number of hiders caught by the seeker (maximum), time taken to catch all hiders (minimum).
* **Environment:** Outdoor playground with hiding spots and obstacles.
* **Actuators:** Legs and arms for movement, voice for yelling "Found."
* **Sensors:** Eyes for locating hiders.

**Question 02. Identify the following task environment properties of the above task**

* **Fully observable vs. Partially observable:** Partially observable. The seeker cannot see all hiding spots simultaneously and must explore the environment to find everyone.
* **Single-agent vs. Multi-agents:** Multi-agents. The seeker and the hiders are different agents with different roles and goals.
* **Deterministic vs. Stochastic:** Stochastic. The hiders may choose different hiding spots, and the seeker's ability to find them depends on chance and their strategies.
* **Episodic vs. Sequential:** Sequential. The game unfolds over time, and the seeker's actions are influenced by previous events in the game.

**Question 03: Blind man’s bluff**

* **Performance measure:** Number of role switches between the catcher and hiders (maximum), entertainment level (maximum).
* **Environment:** Outdoor playground with obstacles.
* **Actuators:** Legs and arms for movement, hands for touching hiders to switch roles.
* **Sensors:** Ears for locating and finding hiders.

**Question 04. Identify the following task environment properties of the above task**

* **Fully observable vs. Partially observable:** Partially observable. The catcher cannot see all hiding spots simultaneously and; relies on shout and laugh to locate hiders.
* **Single-agent vs. Multi-agents:** Multi-agents. The catcher and hiders are different agents with distinct roles and goals.
* **Deterministic vs. Stochastic:** Stochastic. The hiders may use different strategies to avoid being caught, and the outcome depends on their actions and the catcher's perception.
* **Episodic vs. Sequential:** Sequential. The game progresses over time, with actions and events influencing subsequent phases of the game.