

# SUTD 50.021 AI Homework 1 Theory

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## Question 1 (Environment Types)

1. Playing an massively multiplayer online game, such as World of Warcraft

- Observable:
- Deterministic:
- Episodic:
- Static:
- Discrete:
- Single-agent:

2. Buying a movie ticket online

- Observable:
- Deterministic:
- Episodic:
- Static:
- Discrete:
- Single-agent:

3. Planning a holiday itinerary with your friends

- Observable:
- Deterministic:
- Episodic:
- Static:
- Discrete:
- Single-agent:

## Question 2 (Formulation)

Three missionaries and three cannibals are on one side of the river. They all need to cross in a boat that only holds two people at once. There must never be a situation where there is a group of missionaries in one place who are outnumbered by cannibals.

1. Statespace
2. Initial state
3. Goal test
4. Actions
5. Path cost

## Question 3 (General Search)

1. **Difference between a node and a state:**

A state which is a physical configuration does not have a parent, children, depth or path cost unlike a node which is a data structure constituting part of a search tree.

**2. Briefly describe what is a search strategy:**

Starting at an initial, root node of the search tree, a search strategy is the picking of the order of the node expansion.

**3. Describe the difference between Tree Search and Graph Search:**

During the node expansion, a tree search does not keep track of the previously visited states unlike a graph search.