i) Clearly define the set of percepts (at least 5 distinct percepts); all the possible moves (at least 4 moves) and the set of actions (at least 5 or more distinct actions).

Percepts (inputs to the neural network):

- Danger straight - boolean indicating danger straight ahead

- Danger right - boolean indicating danger to the right

- Danger left - boolean indicating danger to the left

- Direction left - boolean indicating snake is moving left

- Direction right - boolean indicating snake is moving right

- Direction up - boolean indicating snake is moving up

- Direction down - boolean indicating snake is moving down

- Food left - boolean indicating food is to the left of snake's head

- Food right - boolean indicating food is to the right of snake's head

- Food up - boolean indicating food is above snake's head

- Food down - boolean indicating food is below snake's head

Moves:

- Move straight

- Move right

- Move left

- Move down

Actions (output from the neural network):

- Move straight

- Turn right

- Turn left

**Actions:**

1. **Turn Left**:
   * Instructs the snake to change its direction to the left.
2. **Turn Right**:
   * Instructs the snake to change its direction to the right.
3. **Continue Straight**:
   * Instructs the snake to continue in its current direction.
4. **Move Towards Food**:
   * Instructs the snake to move in the direction of the food.
5. **Avoid Collision**:
   * Instructs the snake to take an action that avoids a potential collision.
6. **Explore**:
   * Encourages the snake to explore new areas of the grid, potentially discovering new food.

So in summary, there are 11 distinct percepts given as input to the neural network, 4 possible moves the snake can make, and 3 actions produced as output from the network. The agent must learn to map percepts to actions in order to play the game successfully.