CM 2602 – Artificial Intelligence
Tutorial 02

1. Describe the following terms in your own words as applied in intelligent agents. Also take a real-life scenario and give examples for each of the components.

    a. Environment
    b. Agent
    c. Sensors
    d. Actuators
    e. Perception

2. Define the term "Rational Agent". How is it different from the term "Agent"? Explain how we can consider neural networks as a rational agent.

3. What are the different types of task environments? Define each of the environment type individually. Take an example of a Checkers game and mention which environment specification applies to it. Make sure to justify your answer for each case.

4. Discuss the differences between following environments

    a. Fully Observable vs Partially Observable
    b. Static vs Dynamic
    c. Benign vs Adversarial
    d. Episodic vs Sequential

5. List the types of rational agents and explain each term individually. Which category will machine learning fall under? Justify your answer.

6. What are the differences between following rational agents?
    a. Model Based Reflex Agents vs Goal Based Agents
    b. Goal Based Agents vs Utility Based Agents
    c. Learning Agents vs Rest of the Agents

7. Name the four general steps of problem solving and briefly discuss them individually.

8. List and briefly discuss five components we use when defining a problem in AI. Take "Google Maps" as an example and give instances for each of these components.

9. Discuss in 4 people groups how a chess game can be modeled as a graph problem. The discussion should also include how to denote legal moves, game rules, what algorithms (like DFS, BFS) can be used to play the game, what are the possible data structures in each stage to represent the problem etc. Students are allowed use online resources. Each team is given 2 minutes to present their finding to the class.