Introduction to AI
Midterm Spring 2022 (2ⁿᵈ of March)

Rules:
Print your name and group number carefully at the top of all pages. This is a closed book exam and requires no external materials. Any cheating/misconduct will result in a mark of 0 and report to the Educational Dept. Make all answers in pen – no marks will be given to those using pencil. Exam will last 90 min from call of time. There are 6 questions and 50 marks available – this test making up 25% of your final grade:

1. What is Socrates definition of Knowledge and how does it relate to the philosophy of AI? [5pt]

2. Provide and justify a PEAS for a delivery robot. Describe and justify the properties of the environment. [10pt]
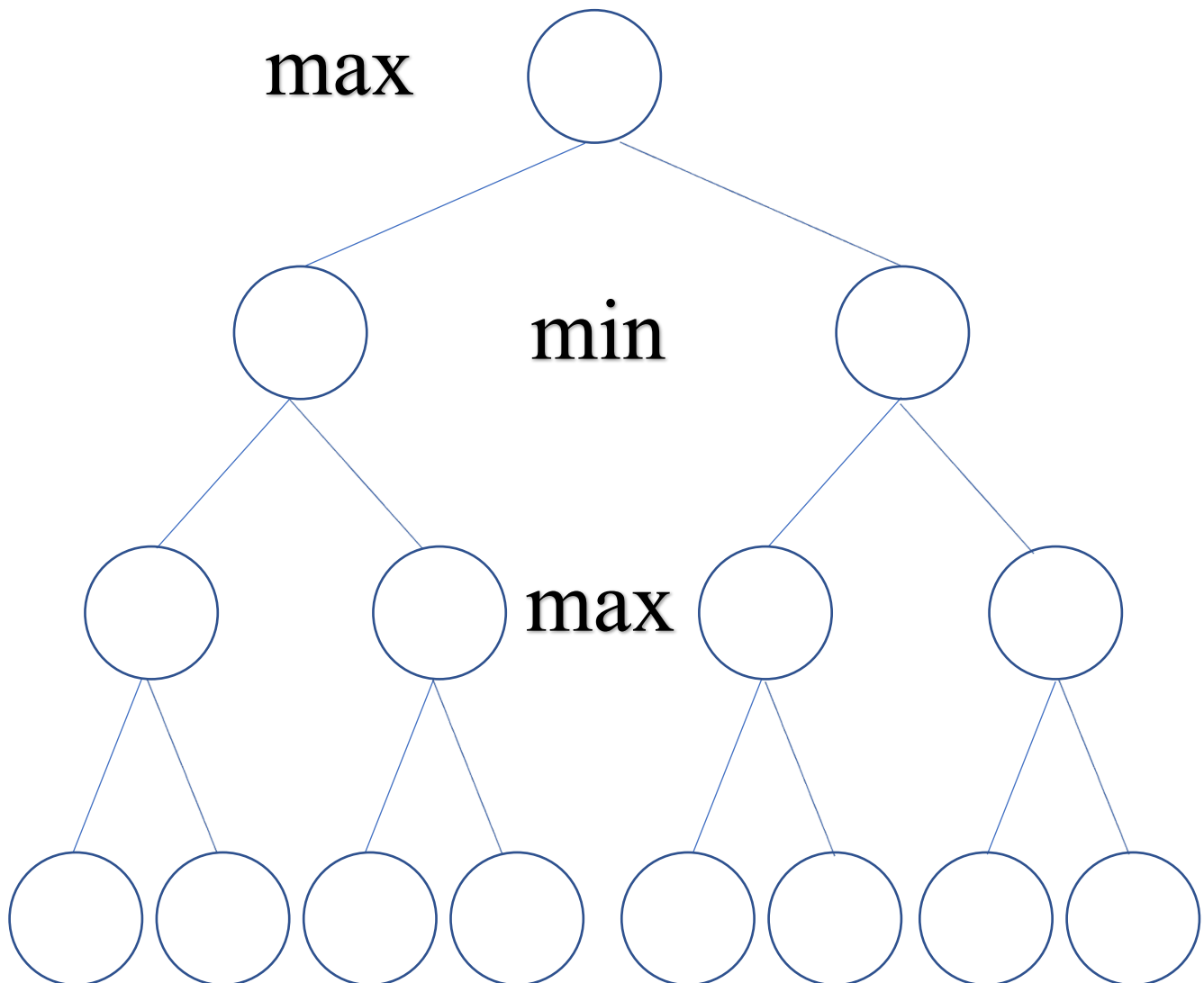
3. Describe the Chinese Room Problem and what it says about the philosophy of AI. [5pt]

4. What is Exploitation and Exploration in a Search Algorithm? If I begin to use my car keys to cause my car alarm to sound – is this Explorative or Exploitative? [5pt]

5. Apply minimax with alpha beta pruning for a given tree and given sequence of numbers appearing in leaves from left to right: -1, 3, 5, 1, -6, -4, 0, 9. [10pt]

max

min

max

6. Tank should cross the field and achieve final point. Different obstacles cost different points:
   - empty cell – 1 point
   - WALL can be destroyed - 2 points
   - LAKE can be crossed – 3 points
   - PIT can be crossed – 4 points
   - HILL can be climbed – 5 points

Tank can move in any direction including diagonal cells. Using the A* algorithm find the shortest path (or paths) and draw other paths from initial point till final point [15pt]

TANK				LAKE	
	HILL	HILL			
			LAKE	HILL	HILL
	WALL	WALL	LAKE		
	LAKE			PIT	
			PIT	WALL	**GOAL**