

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- FEB-2023

COURSE CODE(CREDITS): 18B1WEC838 (3)

MAX. MARKS: 15

COURSE NAME: Artificial Intelligence Techniques

COURSE INSTRUCTORS: Dr. Nishant Jain

MAX. TIME: 1 Hour

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Q1. (a) Write a short note on Rational AI agents. Explain it with the help of an example.

(b) Specify the PEAS description for the Automated taxi AI agent.

(c) With the help of an example, state the difference between the Fully observable environment and or partially observable environment.

[2+2+2=6]CO1

Q2. Considering a maze problem, explain how the following algorithms works to determine a path from source (A) to destination(B):

- a. Depth First Search (DFS)
- b. Breadth First Search (BFS)
- c. Greedy Best First Search (GBFS)
- d. A* Search

[1 X 4=4]CO1

Q3. Explain the following to design an AI agent that plays a tic-tac-toe game:

- | | | |
|-------------------|-----------|-------------|
| a. Initial State. | c. Action | e. Terminal |
| b. Players | d. Result | f. Utility |

[0.5 X 6 = 3]CO3

Q4. Explain how Alpha-Beta Pruning Algorithm is able to reduce the computational complexity of Minimax algorithm.

[2]CO1