

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)**

CLASS: BTECH
BRANCH: CSE/IT

SEMESTER: VII
SESSION: MO/2022

SUBJECT: IT420 ARTIFICIAL INTELLIGENCE

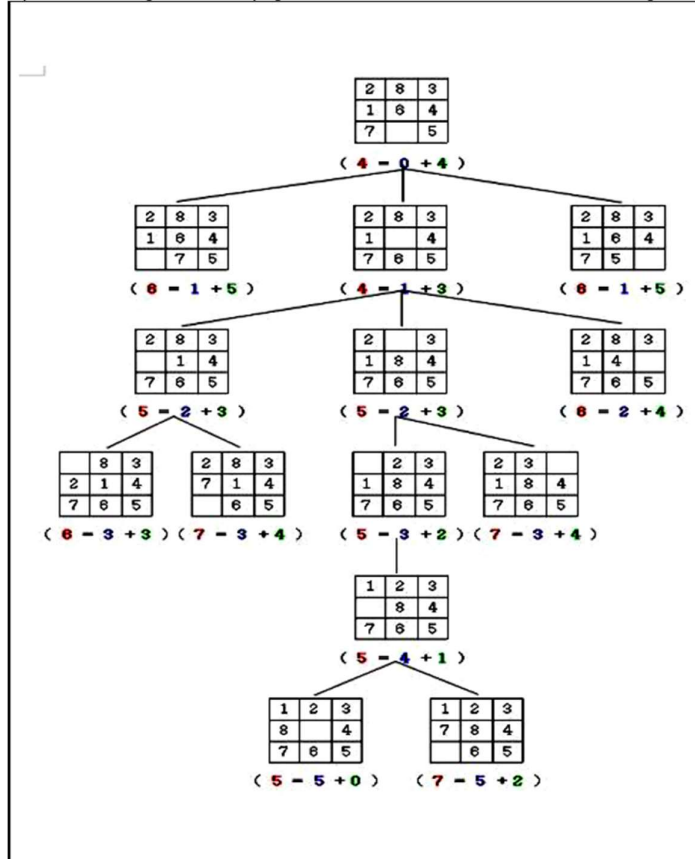
TIME: 2 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 25.
2. Candidates attempt for all 25 marks.
3. Before attempting the question paper, be sure that you have got the correct question paper.
4. The missing data, if any, may be assumed suitably.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

- Q1 (a) Give one name of problem where we use these techniques. [2] CO1 BL2
(i) To give a representation (ii) to make a calculated guess
(iii) Work backward (iii) solve part of problem
- Q1 (b) Identify search algorithm by given search tree and write its algorithm. [3] CO2 BL1



- Q2 (a) Define PEAS for book shopping website. [2] CO1 BL5
Q2 (b) Differentiate between goal based and utility agents. [3] CO1 BL2
- Q3 (a) At a pet shop 25% of animals were cat, 45% of animal are dogs, 18% animals were rabbits and the rest were hamsters. There were 24 hamsters. How many animals were there at pet shop? [2] CO1 BL3

PTO

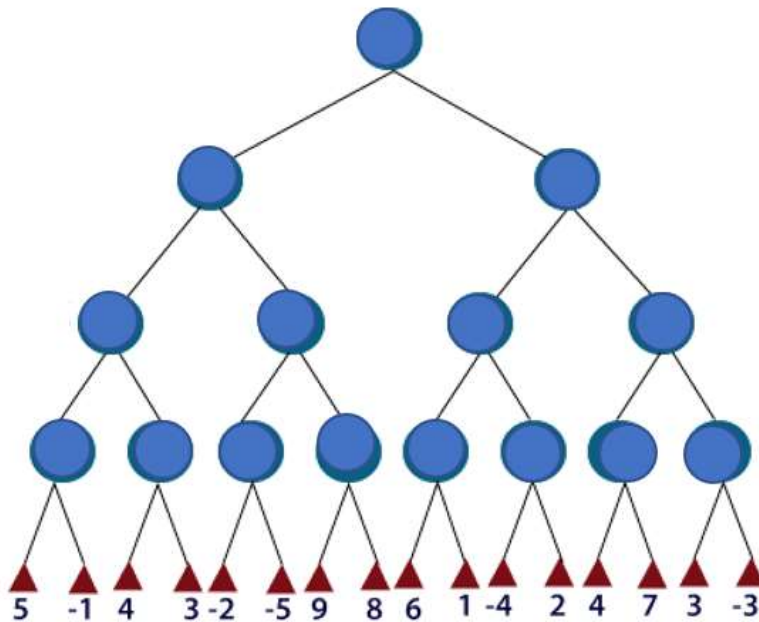
Q3 (b) Write state space representation of given problem. [3] CO2 BL3

- A hungry monkey is in a room, and he is near the door.
- The monkey is on the floor.
- Bananas have been hung from the centre of the ceiling of the room.
- There is a block (or chair) present in the room near the window.
- The monkey wants the banana, but cannot reach it.

Q4 (a) Define heuristic for tic tac toe game. [2] CO1 BL4

Q4 (b) Explain Constraint propagation in Sudoku puzzle. [3] CO2 BL3

Q5 (a) Apply Min max search on given game tree. Find values of alpha and beta. [2] CO2 BL3



Q5 (b) Solve given crypto arithmetic puzzle [3] CO2 BL5

$$\begin{array}{r} \text{BASE} \\ + \text{BALL} \\ \hline \text{GAMES} \end{array}$$