**Sardar Patel College of Engineering, Bakrol**

**Assignment-2**

**SUBMISSION DATE :15/03/2021**

1. What is state space of a problem?
2. Describe Breadth First Search. Comment on the optimalality of this method
3. In the Missionaries and Cannibals Problem, three missionaries and three cannibals must cross a river using a boat which can carry at most two people, under the constraint that, Number of cannibals should be lesser than the missionaries on either side. The boat cannot cross the river by itself with no people on board. For the above mentioned problem, describe state space representation, actions, start and end state.
4. Describe heuristic function for the Travelling Salesman Problem.
5. Discuss Turing Test.
6. What is the significance of the “Turing Test” in AI? Explain how it is performed.
7. Discuss and Analyze Tower of Hanoi problem with respect to the seven problem characteristics.
8. Discuss Simulated Annealing search method. Compare it with hill climbing method.
9. Explain state space representation using water jug problem.
10. Discuss A\* algorithm. Also give one example to explain it.
11. Explain what is meant by “Production System” with respect to AI. Discuss the components of a Production System
12. Explain how a problem can be analyzed based on its characteristics. Analyze the game of “8-Puzzle” based on these characteristics.
13. Explain why it is necessary to choose appropriate ‘granularity’ for knowledge representation.
14. What is “iterative deepening”? How is it useful in time constrained search?
15. Explain the algorithm for Steepest-Ascent Hill Climbing. Briefly describe the situations in which hill climbing may fail to find a solution.
16. Differentiate with example representation of “Instance” and “Isa” relationships.
17. Explain with example how choosing the granularity of representation and finding the right structure are crucial issues in knowledge representation?
18. What is wrong with the following arguments? • Men are widely distributed over the earth • Socrates is a man. • Therefore, Socrates is widely distributed over the earth. How should the facts represented by these sentences be represented in logic so that this problem does not arise?
19. What is meant by “control strategy”? State the requirements of a good control strategy.
20. What is production system? Explain it with an example. Discuss the characteristics of a production system.
21. What do you mean by admissibility of an algorithm? Is A\* algorithm an admissible one? When?

**Subject Coordinator**

**Prof. Nirali S Darji**

**NOTE: Write in notebook**