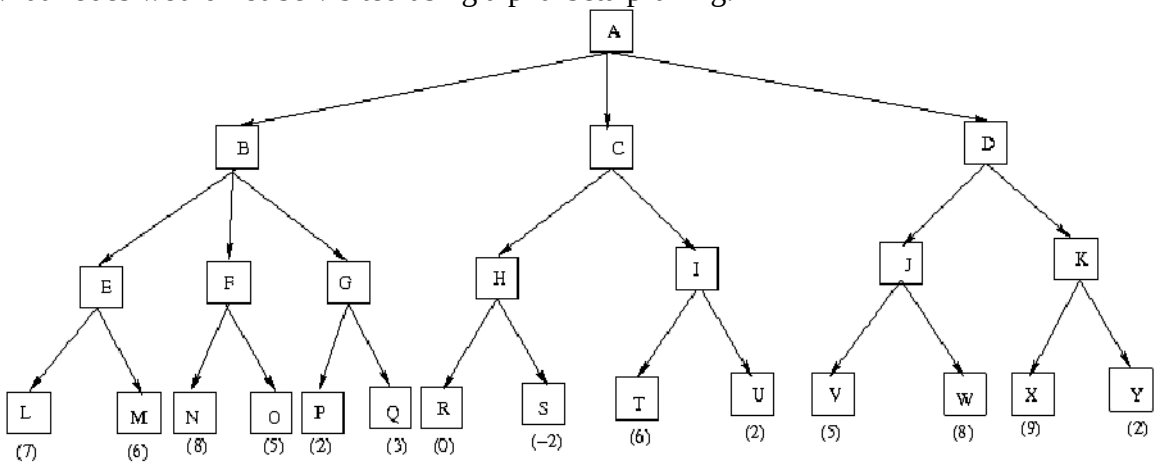
L.J. INSTITUTE OF ENGINEERING AND TECHNOLOGY, AHMEDABAD	
ASSIGNMENT: B.E. VIII SEMESTER (CE):2021	
SUBJECT- Artificial Intelligence	**SUBJECT CODE – 2180703**

	Assignment-1 (Ch-1, 2)
1	Define and discuss different task domain of artificial intelligence.
2	What is control strategy. State its requirements.
3	Consider the Water Jug problem as stated here: "You are given two jugs, a 4- gallon one and a 3-gallon one. Neither has any measuring markers on it. There is a pump that can be used to fill the jugs with water. How can you get exactly 2 gallons of water into the 4-gallon jug?" Represent this as a problem in State Space Search and state its Production Rules. Show at least one solution to this problem.
4	Explain Depth first search and Breadth first search with example.
5	Discuss with examples: AI Problem Characteristics.
6	Explain State Space Search using 8 Puzzle problem.
	Assignment-2 (Ch-3)
1	What is Hill Climbing? Explain Simple Hill Climbing and Steepest- Ascent Hill Climbing.
2	Explain A* algorithm.
3	Explain AO* algorithm with Example.
4	Explain simulated annealing algorithm.
5	Solve the following Cryptarithmetic Problem. S E N D + M O R E M O N E Y
6	Explain mean-end analysis approach to solve AI problems.
	Assignment-3 (Ch-4, 5)
1	Explain the different issues in Knowledge representation.
2	Explain the different approaches to knowledge representation.
3	Assume the following facts : • John likes all kinds of food. • Apples are food. • Chicken is food. • Anything anyone eats and isn't killed by is food. • Bill eats peanuts and is still alive. • Sue eats everything Bill eats. - Translate these sentences into formulas in Predicate logic - Prove that John likes peanuts using backward chaining.
4	1) Consider the following sentences: • Tennis is a game. • Chess is a game. • John and Steve are students. • John plays Tennis. • Steve plays everything that John plays. • Students who play Tennis, do not play Chess. (i) Translate the above sentences into formulas in Predicate logic (ii) Prove using resolution that "Steve does not play Chess"

5	Consider the following axioms: 1. Anyone whom Mary loves is a football star. 2. Any student who does not pass does not play. 3. John is a student. 4. Any student who does not study does not pass. 5. Anyone who does not play is not a football star. Prove using resolution process that "If John does not study, then Mary does not love John".
Assignment-4 (Ch-5, 6, 7, 8)	
1	Explain the forward and backward reasoning.
2	Explain the non-monotonic reasoning.
3	Discuss Bay's theorem.
4	Explain the Bayesian networks.
5	Explain semantic net and frames with proper example.
6	Explain partitioned semantic net representation with example.
Assignment-5 (Ch-10, 12, 13)	
1	Explain Min Max procedure in game playing.
2	Consider the game tree of Fig. 1 in which the static scores are from first player's point of view. Suppose the first player is maximizing player. Applying mini-max search, show the backed-up values in the tree. What move will the MAX choose? If the nodes are expanded from left to right, what nodes would not be visited using alpha-beta pruning.  Fig. 1
3	Explain steps of Natural language Processing.
4	Explain Artificial Neural Network**.**
5	Explain Hopfield networks.
6	Discuss algorithm for perceptron learning.