JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATIONS-2022

B.Tech-VIII Semester (ECE)

COURSE CODE (CREDITS): 18B1WEC838 (3) MAX. MARKS: 35

COURSE NAME: Artificial Intelligence Techniques

COURSE INSTRUCTORS: Emjee Puthooran MAX. TIME: 2 Hours

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

Q1. (a) What are the limitations of a simple reflex agent? Describe how a problem solving agent overcomes the limitations of the simple reflex agent. [2]

(b) What are the different properties of the task environment in the context of an intelligent agent? Briefly explain any three. [3]

Q2. (a) Give any two methods of uninformed search schemes and briefly explain them. [2]

(b) With reference to an intelligent agent, briefly expalin any three properties of the task environment. [3]

Q3. (a) What are learning decision trees? Explain how the entropy of an attribute in a learning decision tree can be calculated. [2]

(b) Give the steps in formulating a decision tree for the problem to decide whether to wait for a table at a restaurant, based on the following four attributes (i) is there an alternative restaurant nearby? (ii) are we hungry? (iii) number of people in the restaurant (iv) price range. [3]

Q4.(a) Explain the following terms with reference to the Propositional logic (i) tautology (ii) contradiction. [2]

(b) What is Predicate Calculus. Explain object constants, relation constants, and function constants with reference to predicate calculus. [3]

Q5. What are variables, domain and constraints in a constraints satisfaction problem? Explain how coloring of map can be done using the constraints satisfaction problem. [5]

Q6. What is reinforcement learning? Explain model based approach and model free approach of reinforcement learning. [5]

Q7. Design a Fuzzy Logic Intelligent agent to control a process, which takess the inputs of error, cumulative error and rate of change of error. [5]