

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2024

B.Tech-VIII Semester (ECE)

COURSE CODE (CREDITS): 18B1WEC838 (3)

MAX. MARKS: 35

COURSE NAME: ARTIFICIAL INTELLIGENCE TECHNIQUES

COURSE INSTRUCTORS: Dr Emjee Puthooran

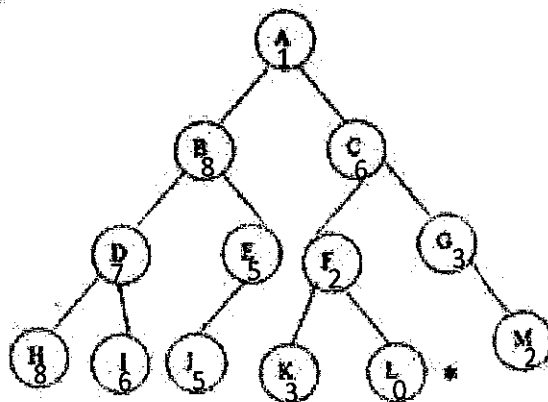
MAX. TIME: 2 Hours

*Note: (a) All questions are compulsory.*

*(b) Marks are indicated against each question in square brackets.*

*(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems*

- Q1. Describe the various elements that constitute an intelligent agent within the realm of Artificial Intelligence. [CO1, 2M]
- Q2. Compare and contrast uninformed and informed search strategies in the context of Artificial Intelligence. Include examples to illustrate the characteristics and applications of each approach. [CO3, 3M]
- Q3. Examine the significance of knowledge-based systems in the domain of Artificial Intelligence, focusing on their methods of knowledge representation and manipulation. [CO3, 5M]
- Q4. Explore the practical implementations of AI methodologies within robotics, highlighting specific instances where AI algorithms augment both the hardware and software structures of robotic systems. [CO4, 5M]
- Q5. Write a Python program for Greedy Best First Search strategy. Use this program to find the solution for the below tree structure, where A is the initial node and L is the goal node. The value of the heuristic function is given for each node in the figure. [CO3, 5M]



[P. T. O]

Q6. Develop a Fuzzy Logic-based intelligent control system for regulating a process, incorporating inputs such as error, cumulative error, and the rate of change of error.

[CO3, 5M]

Q7. Investigate how intelligent agents adapt their behavior based on feedback received from the environment. Discuss the role of learning mechanisms in enabling agents to improve their performance over time. Explore different learning paradigms, such as reinforcement learning or supervised learning, and their effectiveness in training agents to make better decisions and actions.

[CO2, 5M]

Q8. Consider a customer support chatbot designed to assist users with troubleshooting issues related to a software product. Formulate the Semantic Interpretation Tasks and write a Python program for the chatbot using a simple keyword-based approach.

[CO4, 5M]

JUIT TEST-3 EXAMINATION-June-2024

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