

	<b>Reg. No.:</b>	
	<b>Name :</b>	



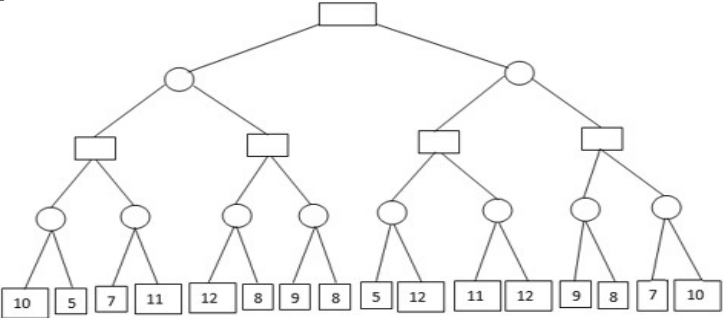
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**TERM END EXAMINATIONS (TEE) – December 2021- January 2022**

<b>Programme</b>	<b>: B. Tech</b>	<b>Semester</b>	<b>: Fall 2021-22</b>
<b>Course Name</b>	<b>: Fundamentals in AI &amp; ML</b>	<b>Course Code</b>	<b>: CSA2001</b>
<b>Faculty Name</b>	<b>: Dr. Mahendra Pratap Yadav</b>	<b>Slot / Class No</b>	<b>: C11+C12+C13/BL20 21221000042</b>
<b>Time</b>	<b>: 1½ hours</b>	<b>Max. Marks</b>	<b>: 50</b>

**Answer ALL the Questions**

Q. No.	Question Description	Marks
<b>PART - A ( 30 Marks)</b>		
1	(a) What Comprises to Artificial Intelligence? Discuss the advantages and disadvantages of the Artificial Intelligence in the context of any five applications where Artificial Intelligence will play an important role to solve their real problems.	10
	OR	
	(b) Explain the Search Algorithm Terminologies in details. Discuss the concept of informed search algorithm. Explain the Depth-First Search (DFS) approach in details along with pseudocode and properties.	10
2	(a) Discuss the concept of First Order Logic (FOL) inference rules in details. Explain the concept of Unification with the help of example.	10
	OR	
	(b) What is the use of Inference engine? Explain the difference between the forward chaining and backward chaining. Discuss the properties of the backward chaining. Apply the forward chaining on the over the example: “the law says that it is a crime for an American to sell weapons to hostile nations. Country Pakistan, an enemy of America, has some missiles, and all the missiles were sold to it by Trunk, who is an American citizen”. So prove that "Trunk is criminal".	10

3	<p>(a) Discuss the concept of Version Space and explain the List-Then algorithm with the following example.</p> <table border="1"> <thead> <tr> <th>Example</th> <th>Have Money</th> <th>Free</th> <th>Watch Movie</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Yes</td> <td>Yes</td> <td>Yes</td> </tr> <tr> <td>2</td> <td>Yes</td> <td>No</td> <td>Yes</td> </tr> <tr> <td>3</td> <td>No</td> <td>Yes</td> <td>No</td> </tr> <tr> <td>4</td> <td>No</td> <td>No</td> <td>No</td> </tr> </tbody> </table>	Example	Have Money	Free	Watch Movie	1	Yes	Yes	Yes	2	Yes	No	Yes	3	No	Yes	No	4	No	No	No	10
Example	Have Money	Free	Watch Movie																			
1	Yes	Yes	Yes																			
2	Yes	No	Yes																			
3	No	Yes	No																			
4	No	No	No																			
OR																						
	<p>(b) (1) Explain the concept of FACTS, RULES, and QUERIES in the context of PROLOG programming. Explain these concepts with the help of an example.</p>	5																				
	<p>(2) Explain the concept of Agent in the context of Artificial Intelligence. Discuss the concept of rationality and rational agent. Explain any one type of AI agent.</p>	5																				
<b>PART - B (20 Marks)</b>																						
4	<p>Explain the concept of Alpha-Beta pruning, how Alpha-Beta pruning approach better than MINIMAX approach. Apply the Alpha-Beta pruning over the following approach.</p> <div style="text-align: center;">  <p>Figure 2</p> </div>	10																				
5	<p>Explain the concept of Perceptron learning. Discuss the concept of Perceptron rule along with the function. Implement the AND function using the Perceptron network.</p>	10																				
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