



VIT

Vellore Institute of Technology
(Deemed to be University under section 3 of U.C. Act, 1956)

REG.NO.:

SCHOOL OF COMPUTER SCIENCE ENGINEERING AND INFORMATION SYSTEMS
CONTINUOUS ASSESSMENT TEST - II
FALL SEMESTER 2025-2026

SLOT: D2+TD2

Programme Name & Branch : B. Tech (IT)
Course Code and Course Name : BITE308L- Artificial Intelligence
Faculty Name(s) : Prof. Hemalatha S, Prof. Valarmathi B & Prof. Tapan Kumar Das
Class Number(s) : VL2025260103106, 3110, 3113
Date of Examination : 8.10.2025
Exam Duration : 90 minutes **Maximum Marks: 50**

General instruction(s):

- Answer All Questions
- M - Max mark; CO - Course Outcome; BL - Blooms Taxonomy Level (1 - Remember, 2 - Understand, 3 - Apply, 4 - Analyse, 5 - Evaluate, 6 - Create)
- Course Outcomes
CO3: Apply different knowledge representations and reasoning techniques

Q. No	Question	M	CO	BL
1.	Represent the following facts using a <i>Semantic Network</i> . 1. Lucius was a soldier. 2. Lucius was a Carthaginian. 3. Lucius was born in 20 B.C. 4. All soldiers are warriors. 5. All Carthaginians were North Africans. 6. All Carthaginians were conquered when Rome invaded in 146 B.C. 7. No warrior lives longer than 130 years. 8. Hannibal was a general. 9. Lucius attempted to betray Hannibal. 10. All soldiers are people.	10	3	3
2.	For an AI-based SMART HOME MANAGEMENT SYSTEM, describe how frames can be used to represent knowledge in this context. Provide examples of entities , attributes , and relationships within this scenario. Devise the necessary frames and their attributes with one example for each frame . Clearly mention if any frame is linked as an attribute of another frame.	10	3	3
3.	a) Represent the following statements with Propositional logic. i. It is not the case that both it is raining and the sun is shining. ii. Neither it is raining nor is the sun shining.	10	3	3



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	iii. The sky will have rainbow, if it rains. iv. An angle is a right angle if and only if it measures 90 degrees v. Arun and Varun both know arithmetic Represent the following statements with First order logic. vi. No dogs can speak human languages. vii. Apoorva is fond of all tall trees. viii. All prime numbers are integers. ix. No student likes any exam x. All green mushrooms are sweet			
4.	Given the following statements: i. All birds can fly. ii. Penguins are birds. iii. Anything that lives in Antarctica and can fly is unusual. iv. Penny is a penguin and lives in Antarctica. Prove that "<i>Penny is unusual.</i>" is true by Resolution.	10	3	3
5.	Use forward chaining and backward chaining to solve for the given knowledge base and goal. [Represent the sentences in knowledge base and goal in propositional logic] Knowledge Base i. If [X barks and wags tail], then [X is a dog] ii. If [X meows and purrs], then [X is a cat] iii. If [X is a dog], then [X is friendly] iv. If [X is a cat], then [X is independent] v. [Max barks and wags tail] Goal: [Is Max friendly or independent?]	10	3	3

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