



VIT

Vellore Institute of Technology

Approved by the Council of Higher Education, Government of Tamil Nadu

School of Computer Science Engineering and Information Systems

Fall Semester 2023-2024

Continuous Assessment Test – II

Programme Name & Branch:

B.Tech IT

Course code: BITE308L

Course Name: Artificial Intelligence

Class Number (s):

VL2023240503947, 3945, 3939, 3963

Faculty Name (s):

Prof. Hemalatha S, Prof. Chiranjil Lal Chowdhary,

Prof. Jayalakshmi P, Prof. Subhashini R

Exam Duration: 90 Mins

Maximum Marks: 50

Q.No.	Question	Max Marks
1.	For an AI system of UNIVERSITY COURSE REGISTRATION, describe how <i>frames</i> can be used to represent knowledge in that context. Provide examples of entities, attributes, and relationships within this scenario. Devise the necessary frames and their attributes with one example for each frame. Mention if any frame is linked as an attribute of another frame.	10
2.	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. iii. The sky will have rainbow, if it rains. iv. Being divisible by 2 is a necessary and sufficient condition for being an even number. v. Arun and Varun both know arithmetic Represent the following statements with Predicate 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. There is some course that every student has taken	5-5
3.	Given the following statements: i. All hounds howl at night. ii. Anyone who has any cats will not have any mice. iii. Light sleepers do not have anything which howls at night. iv. John has either a cat or a hound Prove that "If John is a light sleeper, then John does not have any mice." is true by Resolution.	10

4.	<p>Use forward chaining to solve the following problem</p> <p> A B C $A \wedge B \rightarrow D$ $B \wedge D \rightarrow F$ $F \rightarrow G$ $A \wedge E \rightarrow H$ $A \wedge C \rightarrow E$ </p> <p>Is H true? Draw a tree to illustrate the search for a proof. (Show the steps clearly)</p> <p>Use backward chaining on the following KB to prove Q</p> <p> $P \rightarrow Q$ $E \rightarrow B$ $R \rightarrow Q$ $M \wedge N \rightarrow Q$ $A \wedge B \rightarrow P$ $A \rightarrow M$ $C \rightarrow M$ $D \rightarrow N$ D A </p> <p>Draw a tree to illustrate the search for a proof. Mark the nodes that are satisfied in this KB. (Show the steps clearly)</p>	5+ 5
5.	<p>Use appropriate rules of inference in propositional to solve for the given knowledge base and goal.</p> <p>Knowledge Base</p> <ol style="list-style-type: none"> If [X croaks and eats flies] Then [X is a Toad] If [X chirps and sings] Then [X is a canary] If [X is a toad] Then [X is colored brown] If [X is a canary] Then [X is colored yellow] [John croaks and eats flies] <p>Goal: [John is colored Y]?</p>	10