P P SAVANI UNIVERSITY

Fifth Semester of B.Sc.IT Examination
November 2022
SEIT3540 Artificial Intelligence

25.11.2022, Tuesday   Time: 10:00 a.m. To 12:30 p.m.   **Maximum Marks: 60**

Instructions:
1. The question paper comprises two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

SECTION – I

			CO	BTL
Q - 1	Answer following question in short (Any Five)	[05]		
(i)	What is Supervised learning?		1	1
(ii)	What is meant by "control strategy"?		3	2
(iii)	What is meant by "Production System" with respect to AI?		1	4
(iv)	What is a heuristic function?		2	1
(v)	What is a "Semantic Net"?		1	1
(vi)	What is Fuzzy logic?		2	1
(vii)	What is Unsupervised learning?		1	2
Q - 2 (a)	What is the significance of the "Turing Test" in AI? Explain how it is performed.	[05]	3	4
Q - 2 (b)	Define the term "Artificial Intelligence". Explain how AI techniques improve real-world problem solving.	[05]	3	4
	OR			
Q - 2 (a)	For the Water Jug problem, describe state space representation, actions, start and end state.	[05]	2	2
Q - 2 (b)	Differentiate between Breadth First Search and Best First Search.	[05]	1	1
Q - 3 (a)	Consider the following facts:	[05]	2	3

- Marcus was a man.
- Marcus was a Pompeian.
- All Pompeians were Romans.
- Caesar was a ruler.
- All Pompeians were either loyal to Caesar or hated him.
- Everyone is loyal to someone.
- People only try to eliminate rulers they are not loyal to.
- Marcus tried to eliminate Caesar.

Represent the above facts using Predicate Logic and use Resolution to prove that "Marcus Hate Caesar".

			CO	BTL
Q - 3 (b)	List different Search Techniques. Explain any one of them.	[05]	2	2
	OR			
Q - 3 (a)	Discuss the different approaches to knowledge representation.	[05]	1	
Q - 3 (b)	Explain the procedure to convert a well-formed formula to clause form with the help of an example.	[05]	2	5

Q - 4	Attempt any one.	[05]		
(i)	Discuss Bayesian network and its application.		1	1
(ii)	Explain Hill Climbing with an example.		1	2

SECTION – II

Q - 1	Define Following Terms. (Any Five)	[05]	1	1
(i)	Perceptron		1	1
(ii)	Learning in Neural Network		1	1
(iii)	Hopfield Network		1	1
(iv)	Reasoning		1	1
(v)	Resolution		1	1
(vi)	Sentiment Analysis		1	1
(vii)	Virtual Assistant.		1	1
Q - 2 (a)	Discuss Bayesian Network with and its Applications.	[05]	2	5
Q - 2 (b)	State the Difference between Monotonic and Non monotonic Reasoning.	[05]	1	1
	OR			
Q - 2 (a)	Discuss Goal State Planning with proper example.	[05]	3	2
Q - 2 (b)	Define Logic for Non-Monotonic Reasoning.	[05]	2	1
Q - 3 (a)	List down types of Learning. Explain any one of them in brief.	[05]	1	1,5

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CO : Course Outcome Number   BTL : Bloom's Taxonomy Level

Level of Bloom's Revised Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create