

Sixth Semester B.E/B.Tech. Degree Examination, June/July 2025

Introduction to Artificial Intelligence

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any **FIVE** full questions, choosing **ONE** full question from each module.
 2. M : Marks , L: Bloom's level , C: Course outcomes.

Module – 1			M	L	C
1	a.	What is Artificial Intelligence? Explain the Mundane, Formal and Expert task domains of AI.	10	L2	CO1
	b.	Given two jugs, 1 4 – gallon and 3 – gallon without any measuring markers. There is a pump to fill the jugs with water. How can you get exactly 2 – gallons of water into the 4 – gallon jug. Write the production Rules and the solution.	10	L3	CO1
OR					
2	a.	Describe the Breadth – First search and Dept – First search algorithm with trees.	10	L2	CO1
	b.	Explain the Tic – Tac – Toe game and any one program to solve it.	10	L2	CO1
Module – 2					
3	a.	With a diagram, explain the mappings between facts and representations.	8	L2	CO2
	b.	Explain the following knowledge representation schemes with examples: i) Relational knowledge ii) Inheritable knowledge iii) Inferential knowledge iv) Declarative knowledge	12	L2	CO2
OR					
4	a.	Represent the following sentences in predicate logic: i) Marcus was a man ii) Marcus was a Pompeian iii) All pompeians were Romans iv) Caesar was a ruler v) All Romans were either loyal to Caesar or hated him vi) Everyone is loyal to someone vii) People only try to assassinate rulers they are not loyal to viii) Marcus tried to assassinate Caesar	10	L3	CO2
	b.	Write the algorithm to convert predicate logic to clausal Normal Form.	10	L3	CO2
Module – 3					
5	a.	What are Non – Monotonic reasoning systems? Explain from the context of ABC murder story.	10	L2	CO3
	b.	Explain the Baye's Theorem and Bayesian Networks.	10	L2	CO3
OR					
6	a.	Write a short note on Dempster Shafer Theory.	10	L2	CO3
	b.	Describe the justification – based Truth Maintenance System with example.	10	L2	CO3

7	a.	Write the MiniMax Algorithm, explain with example.	10	L2	CO4
	b.	What do you mean by Natural Language Processing? Explain the various steps in Natural Language Processing.	10	L2	CO4

OR

8	a.	Explain Top –down and Bottom – up parsing of sentences using grammars.	10	L2	CO4
	b.	Derive the parse Tree for the following sentences using the grammar in Top down approach: Grammar : i) $S \rightarrow NP\ VP$ ii) $NP \rightarrow ART\ N$ iii) $NP \rightarrow ART\ ADJ\ N$ iv) $VP \rightarrow V$ v) $VP \rightarrow V\ NP$ 1) Derive the sentence “The dogs cried” 2) Derive the sentence “The old man cried”.	10	L3	CO4

Module – 5

9	a.	Describe Rote Learning and Learning by Taking Advice.	10	L2	CO5
	b.	With a neat diagram, explain the Expert System Shells.	10	L2	CO5

OR

10	a.	Describe the Expert Systems and explain representing and using Domain knowledge.	10	L2	CO5
	b.	Write a short note on : i) Version space ii) Decision Trees	10	L2	CO5

* * * * *

2 of 2