K. K. Wagh Institute of Engineering Education & Research, Nashik

(An Autonomous Institute From A.Y. 2022-23)

WINTER-2025	
Exam Seat No.:	
Academic Year:2025-2026	Semester:V
Class:TY	Program:B.Tech
Branch Code:ADS/COM/CSD	Pattern:2023
Name of Course:Artificial Intelligence	Course Code:2311302
Max. Marks:60	Duration:2.30 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains ___2__page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

		Marks	CO
Question No. 1			
1	Explain the foundations and history of Artificial Intelligence (AI), highlighting the key milestones in its development.	(6)	CO1
Question No. 2			
2	Explain Memory Bound Heuristic Search with advantages and disadvantages	(6)	CO2
Question No. 3			
3.a)	Write function (pseudo-code) of min-max algorithm and explain with an example.	(6)	CO3
	OR		
3.b)	Define elements of game. What do you mean by zero-sum game explain with example	(6)	CO3
3.c)	What do you mean by inferences in CSP. Explain different types of local consistencies in constraint propagation with example	(6)	CO3
	OR		
3.d)	Define Constraint Satisfaction Problem. Explain SUDOKU problem and represent it using CSP.	(6)	CO3
3.e)	Explain about Arc Consistency with its algorithm.	(4)	CO3
	OR		
3.f)	Explain how optimal decisions are taken in games with example.	(4)	CO3
Question No. 4			
4.a)	Explain the resolution method in propositional and first-order logic with example.	(6)	CO4
	OR		
4.b)	Explain the concept of unification in FOL with example. Why is it important for automated inference?	(6)	CO4
4.c)	Explain the concept of knowledge representation and discuss how propositional logic and first-order logic are used for knowledge representation and reasoning in Artificial	(6)	CO4

Intelligence

OR

4.d)	Prove the following statement by forward chaining algorithm and draw the tree also. "Gita likes all kinds of food. Mango and chapati are food. Gita eats almond and is still alive. Anything eaten by anyone and is still alive is food." Prove "Gita likes almond."	(6)	CO4
4.e)	Illustrate the difference between forward chaining and backward chaining with example	(4)	CO4

OR

4.f)	What are quantifiers in first-order logic? Give examples of each.	(4)	CO4

Question No. 5

5.a)	Describe categories, objects, events, and mental events with examples.	(6)	CO4

OR

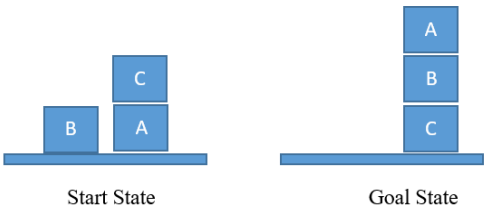
5.b)	What are the main steps involved in Ontological Engineering? Explain with examples.	(6)	CO5
5.c)	Explain Backward State-Space Search for Planning. Describe its working. Compare it with Forward State-Space Search.	(6)	CO5

OR

5.d)	Define PDDL, Describe PDDL for Air Cargo transportation Problem	(6)	CO5
5.e)	Write short note on Automated Planning and Classical Planning.	(4)	CO5

OR

5.f)	Define PDDL, Describe PDDL for following Blocks-world problem	(4)	CO5



····· End of question paper·····