Question Paper Code: R18A41CS05

R18

ANURAG Engineering College

(An Autonomous Institution)

IV B. Tech I Semester Regular/Supplementary Examinations, Dec-2024

ARTIFICIAL INTELIGENCE

(COMPUTER SCIENCE AND ENGINEERING)

Time: 3 Hours **Max. Marks: 75**

Section – A (Short Answer type questions) (25 Marks)

Answer All Questions		Course Outcome	B.T Level	Marks
1.	What is meant by a "state space" in AI?	CO1	L1	2M
2.	Differentiate between problem characteristics and production system characteristics.	CO1	L2	3M
3.	What are the primary issues in knowledge representation?	CO2	L1	2M
4.	What is the key difference between forward reasoning and backward reasoning?	CO2	L2	3M
5.	What is Bayes' theorem? State its formula.	CO3	L1	2M
6.	What are certainty factors in rule-based systems?	CO3	L1	3M
7.	List the key components of a planning system.	CO4	L1	2M
8.	What is the "Blocks World" problem in planning systems?	CO4	L1	3M
9.	Define a decision tree.	CO5	L1	2M
10.	What is learning from examples? Provide an example.	CO5	L2	3M

Section B (Essay Questions)

Answer all questions, each question carries equal marks. **(5 X 10M = 50M)**

11. A)	Explain how best first search is implemented using heuristic function for best path selection.	CO1	L2	10M
	OR			
B)	Explain about Constraint satisfaction problem with example.	CO1	L3	10M
12. A)	Describe ISA and instance relations with examples, highlighting their importance in AI knowledge representation.	CO2	L2	10M
	OR			
B)	Compare procedural and declarative knowledge. Discuss their relevance in AI systems with examples.	CO2	L3	10M
13. A)	Explain the steps for implementing depth-first search (DFS) and breadth-first search (BFS) with examples.	CO3	L2	10M
	OR			
B)	Discuss the logics used for non-monotonic reasoning and their applications in AI systems.	CO3	L2	10M
14. A)	Explain the Minimax algorithm with an example. How does it apply to two-player games?	CO4	L3	10M
	OR			
B)	What are Augmented Transition Networks (ATNs)? Explain their use in syntactic and semantic analysis.	CO4	L2	10M
15. A)	What is a knowledge shell? Discuss its components and role in the development of expert systems.	CO5	L2	10M
	OR			
B)	Describe Winston's Learning Program. Explain how it helps in learning concepts through examples and counterexamples.	CO5	L2	10M