JHARKHAND Rai University RANCHI

End Semester/Reappear (Semester VI) Examination May 2025

Programme: BCA

Course: Technique of Artificial Intelligence **Full Marks: 70**

Course Code:3C.351 **Time: 3 Hrs.**

Enrolment no. _____

Q.No.	Questions	CO	Bloom Taxonomy Category	Marks
	Section I			
1	**Short Answer type questions.**			**4 x 5 = 20**
a	Explain Simple Reflex Agents and Goal Based Agents with the help of suitable diagrams.	CO1	Understand	
	or			
	Describe the concept of 8 puzzle problems.	CO1	Understand	
b	State and prove Contrapositive property in propositional logic.	CO2	Apply	
	or			
	Discuss various properties and approaches for knowledge representation.	CO2	Understand	
c	Describe the Supervised learning & unsupervised learning with an example for each.	CO3	Understand	
	or			
	Describe the Learning in AI and its types.	CO3	Understand	
d	Describe Expert system and the characteristics of Expert system.	CO4	Understand	
	or			
	Describe LISP programming language along with an example.	CO4	Understand	
	Section II			
	Long Answer type questions.			**3 x 10 = 30**
2	Describe the various forms of knowledge used in knowledge representation**,** highlighting their characteristics, applications, and significance in artificial intelligence systems.	CO2	Understand	
	or			
	Describe the fundamentals of propositional logic, examining key inference rules through illustrative examples to highlight their applications in logical reasoning.	CO2	Analyze	
3	Examine the importance of Natural Language Processing (NLP), analyzing key challenges and exploring effective solutions to overcome them.	CO3	Analyze	
	or			
	Describe the Morphological, Syntactic, Semantic, and Pragmatic phases of Natural Language Processing (NLP), analyzing their roles in language understanding and processing.	CO3	Understand	
4	Contrast Backward Chaining and Forward Chaining in Expert Systems, illustrating their differences with appropriate diagrams to highlight their applications and decision-making processes.	CO4	Analyze	
	or			
	Examine the concept of an expert system shell, assessing its core functionalities and key characteristics in the development of intelligent systems.	CO4	Analyze	
	Section III			
	Application based questions			**1 x 20 = 20**
5	Examine and assess various types of AI agents and their operational environments, illustrating each category with detailed examples. Develop a comparative framework to highlight their advantages and limitations across different applications.	CO1	Evaluate	
	or			
	Compare uninformed and informed search methodologies, analyzing key algorithms within each category based on efficiency, applicability, and computational complexity.	CO1	Evaluate	

CO1 Demonstrate fundamental understanding of the history of artificial intelligence (AI) and its foundations.

CO2 Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning.

CO3 Demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.

CO4 Demonstrate proficiency developing applications in an 'AI language', expert system shell