

# CBCS SCHEME



USN

**BAD402**

## Fourth Semester B.E./B.Tech. Degree Examination, June/July 2024 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													
<b>Q.1</b>	a.	Define Artificial Intelligence. Explain the foundation of AI in detail.	10	L1	CO1													
	b.	Explain all four different approaches to AI in detail.	10	L1	CO1													
<b>OR</b>																		
<b>Q.2</b>	a.	Give PEAS specification for : i) Automated taxi driver ii) Medical diagnostic system.	10	L1	CO1													
	b.	Differentiation : i) Fully observable Vs partially observation ii) Single agent Vs Multiagent iii) Deterministic Vs stochastic iv) Static Vs Dynamic.	10	L1	CO1													
<b>Module – 2</b>																		
<b>Q.3</b>	a.	Explain five components and well defined problem. Consider an 8-puzzle problem as an example and explain.	10	L2	CO2													
	b.	Discuss in detail in Infrastructure for search algorithm.	10	L2	CO2													
<b>OR</b>																		
<b>Q.4</b>	a.	Write an algorithm for Breadth – first search and explain with an example.	10	L2	CO2													
	b.	Explain Depth first search techniques in detail.	10	L2	CO2													
<b>Module – 3</b>																		
<b>Q.5</b>	a.	Explain the A* search to minimize the total estimated cost.	10	L3	CO3													
	b.	Write an algorithm for hill climbing search and explain in detail.	10	L3	CO3													
<b>OR</b>																		
<b>Q.6</b>	a.	In the below graph, find the path from A to G. Using Greedy Best First search and A* search algorithm. The values in the table represent heuristic values of reaching the goal node G pass current node.	10	L3	CO3													
	<div style="margin-top: 10px;"> <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr><td>A</td><td>5</td></tr> <tr><td>B</td><td>6</td></tr> <tr><td>C</td><td>4</td></tr> <tr><td>D</td><td>3</td></tr> <tr><td>E</td><td>3</td></tr> <tr><td>F</td><td>1</td></tr> <tr><td>G</td><td>0</td></tr> </table> </div> <p style="text-align: center;">Fig Q6(a)</p>		A	5	B	6	C	4	D	3	E	3	F	1	G	0		
A	5																	
B	6																	
C	4																	
D	3																	
E	3																	
F	1																	
G	0																	

	b.	Explain the syntax and semantion of propositional logic.	10	L3	CO3
<b>Module – 4</b>					
Q.7	a.	Explain the syntax and semantics of the first order logic.	10	L2	CO2
	b.	Explain the following with respect to the first order logic i) Assertions and Queries in first order logic ii) The Kinship domain iii) Numbers, sets and lists.	10	L2	CO2
<b>OR</b>					
Q.8	a.	Explain unification and lifting in detail.	10	L3	CO4
	b.	Explain Forward chaining algorithm with an example.	10	L3	CO4
<b>Module – 5</b>					
Q.9	a.	Explain basic probability Notation in detail.	10	L3	CO5
	b.	Explain Baye's rule and its use in detail.	10	L3	CO5
<b>OR</b>					
Q.10	a.	Explain Independence in Quantifying uncertainty with example.	10	L3	CO5
	b.	Explain knowledge Acquiring in detail.	10	L3	CO5

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