



CBCS SCHEME

USN.

BAD402

Fourth Semester B.E./B.Tech. Degree Supplementary Examination, June/July 2024

Artificial Intelligence

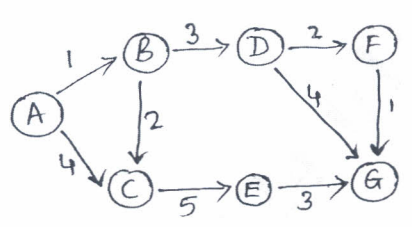
Time: 3 hrs.

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
Q.1	a.	Explain in detail the four approaches to artificial intelligence.	10	L2	CO1
	b.	Explain the disciplines that contributed ideas, viewpoints and techniques to artificial intelligence.	10	L2	CO1
OR					
Q.2	a.	Distinguish the following terms concerning properties of the task environment: i) Semi-dynamic vs dynamic ii) Episodic vs sequential iii) Deterministic vs Stochastic.	6	L4	CO1
	b.	Identify PEAS specification of biometric authentication system.	6	L3	CO1
	c.	With a neat diagram, explain simple reflex agent and model-based reflex agent.	8	L2	CO1
Module – 2					
Q.3	a.	Construct the state-space graph for the two-cell vacuum world and define the components to solve this problem.	6	L3	CO2
	b.	Illustrate the graph search algorithm.	4	L2	CO2
	c.	Explain the simple solving agent with the algorithm and illustrate the incremental formulation of 8-queens problems.	10	L2	CO2
OR					
Q.4	a.	Illustrate the properties and algorithm of the breadth – first search technique.	10	L2	CO2
	b.	Illustrate the algorithm of Depth-limited search and iterative deepening search. Solve examples for both.	10	L3	CO2
1 of 2					

Module – 3

Q.5	<p>a. In the below graph, discover the path from A to G using Greedy best first search and A* search algorithms. The values in the table represent heuristic values of reaching the goal node G from the current node.</p> <div style="text-align: center;">  </div> <div style="text-align: right; margin-top: 10px;"> <table border="1" data-bbox="1073 340 1172 635"> <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.Q.5(a)</p>	A	5	B	6	C	4	D	3	E	3	F	1	G	0	10	L4	CO2
A	5																	
B	6																	
C	4																	
D	3																	
E	3																	
F	1																	
G	0																	
	b. Explain heuristic functions in detail.	10	L2	CO2														

OR

Q.6	a. Outline a generic knowledge based agents program. Write PEAS specifications for wumpus world.	10	L2	CO3
	b. Explain the syntax and semantics of propositional logic.	10	L2	CO3

Module – 4

Q.7	<p>a. Explain these concepts concerning first-order logic:</p> <ul style="list-style-type: none"> i) Assertions and queries ii) Numbers, sets and lists iii) Wumpus world. 	10	L2	CO3
	b. Explain the syntax and semantics of first order logic.	10	L2	CO3

OR

Q.8	a. Explain forward chaining algorithm of first-order logic with example.	10	L2	CO3
	<p>b. Identify appropriate quantifiers for the following statements:</p> <ul style="list-style-type: none"> i) Some students read well ii) Some students like some books iii) Some students like all books iv) All students like some books v) All students like no books. 	10	L3	CO3

Module – 5

Q.9	a. Explain Baye's rule and its use in detail.	10	L2	CO4
	b. Explain independence with respect to quantifying uncertainty.	10	L2	CO4

OR

Q.10	a. Explain inference using full joint distributions.	10	L2	CO4
	b. Explain basic probability notation in detail.	10	L2	CO4
