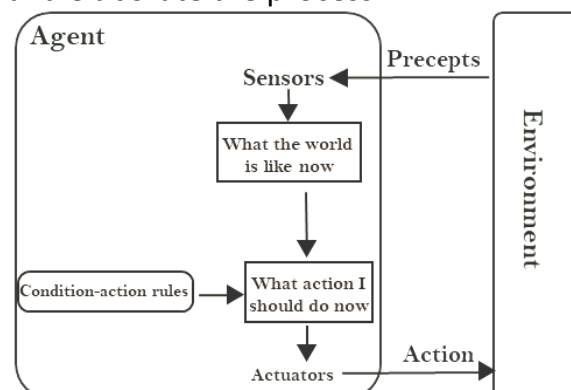


THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025***Third Semester**Artificial Intelligence and Data Science***AL3391 - Artificial Intelligence****Regulations – 2021****Duration : 3 Hrs****Maximum : 100 Marks****PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

Q.No	Questions	BLT	CO	Marks
1.	Infer the steps involved in simple problem-solving agent.	L1	1	2
2.	List the criteria to measure the performance of different search strategies.	L2	1	2
3.	How iterated hill climbing will find a global optimal solution?	L2	2	2
4.	Find the components of A* algorithm and its components functionality.	L3	2	2
5.	Write the objective of a stochastic game playing techniques.	L2	3	2
6.	Find the primary advantages of using local search for solving CSPs compared to backtracking.	L3	3	2
7.	Indicate the first order definite clause.	L1	4	2
8.	Define backward chaining algorithm.	L1	4	2
9.	Justify the purpose of Bayesian networks.	L2	5	2
10.	What are causal networks?	L2	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BLT	CO	Marks
11.	a i The food delivery robot is placed in a fully observable environment as given in the Fig.1, redesign the AI agent where it is shifted to a partially observable environment so it has to keep track of the environment and elaborate the process.	L3	1	8

**Fig.1**

- ii A song recommendation system is deployed in a music player. The objective of the intelligent agent is to recommend songs to the user and prediction accuracy, click-through rate, user engagement, diversity and personalization. With a neat sketch, illustrate the process how decision making is done in the AI agent

Or

- b Illustrate the uninformed search methods with suitable examples.
12. a i Differentiate uninformed search and heuristic search.
- ii Compute the heuristics value of the following 8 puzzle problem, the current state of the 8 puzzle problem is given in Fig. 2 and select the next possible state that is better in heuristics.



Fig. 2

Or

- b Breakdown the steps for online search agents with suitable examples.
13. a Outline the alpha-beta pruning algorithm and the minmax game playing algorithm with example.
- Or**
- b Explain backtrack search for constraint satisfaction problem for map coloring problem.
14. a i Illustrate the rules commonly used for substitution in propositional logic.
- ii How resolution is formed in propositional logic? Explain in detail with an example.
- Or**
- b Analyze the forward chaining process in detail with example. What is the need of incremental chaining?
15. a i Predict the ways to understand the semantics of Bayesian networks.
- ii Parse the exact inference in Bayesian networks.
- Or**
- b Demonstrate how direct sampling methods help in approximate inference.