Reg. No.															

Question Paper Code	13590

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2025

Sixth Semester

Computer Science and Engineering

(Common to Computer Science and Engineering (IoT), Computer and Communication Engineering, Electronics and Communication Engineering, Information Technology & M.Tech. - Computer Science and Engineering (5 Years Integrated))

20CSPC601 - ARTIFICIAL INTELLIGENCE

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

		Marks	*K – Level*	*CO*
1.	Which of the following is a characteristic of an intelligent agent? (a) Perception and action (b) Only perception (c) Only action (d) None of the above	*1*	*K1*	*CO1*
2.	Which of the following is NOT a typical intelligent agent? (a) Chatbot (b) Self-driving car (c) Thermostat (d) Calculator	*1*	*K1*	*CO1*
3.	You are tasked with developing a system to schedule tasks in an office. Which search method would you choose to prioritize the most urgent tasks? (a) A* search with a heuristic based on deadline (b) Depth-first search (c) Randomized search (d) Hill climbing based on task duration	*1*	*K1*	*CO2*
4.	Which search strategy is optimal for finding the shortest path in an unweighted graph? (a) A* search (b) Depth-first search (c) Breadth-first search (d) Greedy search	*1*	*K1*	*CO2*
5.	Which algorithm is commonly used in AI for making optimal decisions in two-player games? (a) Hill climbing (b) Depth-first search (c) Minimax algorithm (d) A* search	*1*	*K1*	*CO3*
6.	What kind of node is added to the game tree in stochastic games? (a) Utility node (b)Leaf node (c) Chance node (d) Search node	*1*	*K1*	*CO3*
7.	Mental events and mental objects are useful in: (a) Prolog debugging (b) Representing an agent's beliefs and intentions (c) Programming GUIs (d) Looping over facts	*1*	*K1*	*CO4*
8.	Resolution in logic is mainly used for: (a) Variable declaration (b) Function calls (c) Proving theorems by contradiction (d) Type checking	*1*	*K1*	*CO4*
9.	In state-space search, what are the nodes typically represented as? (a) Operators (b) States (c) Goals (d) Heuristics	*1*	*K1*	*CO5*
10.	Which of the following is a type of language model? (a) CNN (b) SVM (c) N-gram model (d) SQL	*1*	*K1*	*CO6*

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

11.	List any two types of intelligent agents.	*2*	*K1*	*CO1*
12.	Compare and contrast between reflex agents and model-based agents.	*2*	*K2*	*CO1*
13.	Give any two examples of uninformed search algorithms.	*2*	*K1*	*CO2*
14.	Outline any two optimization problems that use local search.	*2*	*K2*	*CO2*
15.	Define utility function in game playing.	*2*	*K1*	*CO3*

16.	Differentiate between deterministic and stochastic games.		*2*	*K2*	*CO3*
17.	State any two features of Prolog programming language.		*2*	*K1*	*CO4*
18.	Identify one advantage of using resolution in logical inference.		*2*	*K2*	*CO4*
19.	Define relevance information in the context of learning.		*2*	*K1*	*CO5*
20.	Identify the use of Planning Graphs.		*2*	*K2*	*CO5*
21.	List the main components of a chatbot.		*2*	*K1*	*CO6*
22.	Elaborate the concept of semantic interpretation in NLP.		*2*	*K2*	*CO6*

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a)	Compare the types of environment types in Artificial Intelligence with suitable examples.	*11*	*K2*	*CO1*
		OR				
	b)	Explain the types of agents in artificial intelligence with suitable diagrams for each agent.	*11*	*K2*	*CO1*
24.	a)	Explain the map coloring problem as a Constraint Satisfaction Problem (CSP).	*11*	*K2*	*CO2*
		OR				
	b)	Explain in detail about Hill Climbing Search.	*11*	*K2*	*CO2*
25.	a)	Describe how alpha-beta pruning enhances the efficiency of the min max algorithm.	*11*	*K2*	*CO3*
		OR				
	b)	Explain in detail about min-max algorithm with an example.	*11*	*K2*	*CO3*
26.	a)	Consider the following statements: All humans are mortal. Socrates is a human. Therefore, Socrates is mortal. Illustrate the above statements using First Order Predicate (FOPL). Show the predicates, quantifiers, variables, and logical connectives used in your formulation.	*11*	*K3*	*CO4*
		OR				
	b)	Demonstrate the syntax and semantics of FOPL, including constants, variables, predicates, functions, and quantifiers.	*11*	*K3*	*CO4*
27.	a)	Explain in detail about the Planning State Space Search.	*11*	*K2*	*CO5*
		OR				
	b)	Outline Knowledge in Learning with example.	*11*	*K2*	*CO5*
28.	a)	Illustrate the language models commonly used in Natural language processing.	*11*	*K3*	*CO6*
		OR				
	b)	Show simple chatbot creation with an example code.	*11*	*K3*	*CO6*