12 JUN 2023

Reg. No.												

Question Paper Code	11854

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2023

Sixth Semester

Computer Science and Business Systems

20CBPC603 – ARTIFICIAL INTELLIGENCE

(Regulations 2020)

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	What are the needs of PEAS components?	*2,K1,CO1*
2.	List out the merits of Utility based agent in AI.	*2,K1,CO1*
3.	What are the two types of memory bounded heuristic algorithms?	*2,K1,CO2*
4.	Express depth limited search.	*2,K,CO2*
5.	What is called as bidirectional search?	*2,K1,CO3*
6.	Define Ontological commitment.	*2,K1,CO3*
7.	State the Quantifier and its types.	*2,K1,CO4*
8.	Outline the conditional probability.	*2,K1,CO4*
9.	Differentiate Supervised and Unsupervised learning.	*2,K2,CO5*
10.	Give the classification of learning process.	*2,K1,CO5*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Explain in detail the structure of different intelligent agents.	*13,K2,CO1*
		OR	
	b)	Illustrate in detail about the Knowledge - based agent with pseudocode. Also State the propositional theorem proving with inference and proofs.	*13,K3,CO1*
12.	a)	State the comparisons of Greedy best first search and A* Search algorithms based on performance measure with pseudocode justification: Complete, Optimal, Time and space complexity.	*13,K3,CO2*
		OR	
	b)	State the list of Problem-solving techniques in Uninformed searching algorithms on performance measure: Complete, Optimal, Time and space complexity. (i) Depth First Search. (ii) Depth Limited Search. (iii) Iterative Deepening Depth-First Search.	*13,K2,CO2*

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

13. a) For the 8 Queens problem, given solution using Hill climbing search and Genetic algorithms. Compare the performance of both. *13,K3,CO3*

OR

b) Brief about Alpha-Beta pruning with Tic-Tac-Toe game with suitable example. *13,K2,CO3*

14. a) Translate the following sentence into formulas in predicate logic and clause form: a). John likes all kind of food. b). Apples are food. c). Chicken is food. d). Anything any one eats and is not killed by is food. e). Bill eats peanuts and is still alive. f). Sue eats everything Bill eats. *13,K3,CO4*

OR

b) Explain in detail about the issues that arise while using knowledge representation. *13,K3,CO4*

15. a) Describe in detail about the Expert System with component of an Expert System. Also describe the process of building an Expert System with Applications. *13,K3,CO5*

OR

b) Explicate in detail about the method for constructing Bayesian Networks with compactness and node ordering. Also State the conditional independent relation in Bayesian Networks. *13,K3,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Write pseudocode agent programs for the Model-based reflex and Goal-based Agent for all concern for the vacuum- cleaner world. Also state the 8-puzzle consists of a 3x3 board suitable example. *15,K3,CO1*

OR

b) Illustrate in detail about the Decision Theory making under uncertainty on non-Probabilistic measures: *15,K3,CO5*
(i) Optimism Criteria.
(ii) Pessimism Criteria.
(iii) Equal Probability.
(iv) Coefficient of Optimism Criteria.
(v) Regret Criteria.