Reg. No.													

Question Paper Code	11990

13 JUL 2023

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

Fourth Semester

Artificial Intelligence and Data Science

20AIPC401 – FUNDAMENTALS OF 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 is the difference between artificial intelligence and human intelligence?	*2,K1,CO1*
2.	What is the goal of Artificial Intelligence?	*2,K1,CO1*
3.	Write the classification of CSP problems with respect to constraints.	*2,K2,CO2*
4.	How can we avoid ridge and plateau in hill climbing?	*2,K2,CO2*
5.	Define ontological engineering	*2,K1,CO3*
6.	What is Existential Instantiation?	*2,K1,CO3*
7.	What is STRIPS planning?	*2,K1,CO4*
8.	What is Reactive planning? What is the structure used by it?	*2,K2,CO4*
9.	How AI is used in Business?	*2,K2,CO5*
10.	Outline the properties of internal representations in robotic perception.	*2,K2,CO5*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Write in detail about any TWO Informed Search strategies with examples.	*13,K2,CO1*
		OR	
	b)	Define Agent. Explain in detail the structure of different Intelligent agents.	*13,K2,CO1*
12.	a)	What is the Significance of Pruning System? What is Alpha-Beta Pruning? How it is advantageous of MinMax?	*13,K2,CO2*
		OR	
	b)	(i) Apply backtracking for the map coloring problem and explain.	*5,K3,CO2*
		(ii) Examine the searching in a partially observable environment for an example.	*8,K3,CO2*

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

13. a) Consider the following sentences: *13,K3,CO3*
- John like all kinds of food
- Apples are food
- Chicken is food
- Anything anyone eats and isn't killed is food
- Bill eats peanuts and still alive
- Sue eats everything Bill eats

(i) Translate these sentences into formulae in predicate logic.
(ii) Convert the above FOL into clause form.

OR

b) Describe the steps involved in the knowledge engineering process with example. Give the five logical connectives used to construct complex sentences and give the formal grammar of propositional logic. *13,K3,CO3*

14. a) Examine the following with examples:
(i) Non-linear planning using constraint posting *9,K2,CO4*
(ii) Conditional planning *4,K2,CO4*

OR

b) Analyze the Goal Stack Algorithm for Block World Problem with example *13,K3,CO4*

15. a) List the Language Models. Illustrate them in detail with an example *13,K2,CO5*

OR

b) Define Information retrieval. Compare information retrieval with information extraction. *13,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Construct the steps involved in translating a text from one natural language (source) to another language (target) with example. *15,K3,CO6*

OR

b) Build a robotic action with the appropriate hardware needed and give the explanation. *15,K3,CO*