

# Hi-Tech Institute of Engineering & Technology

DEPARTMENT OF CSE  
(SEM-5th) SEMESTER 2023-24

Subject Code: KAI- 501

Subject Name: AI

Faculty Name: Aruna

Time: 90 Minutes

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

## SECTION-A

1. Attempt all question in brief.

2x 10 = 20

Q.No	Question	Marks	CO
a.	How goal-based agent works?	2	1
b.	Define the Heuristic function with example.	2	2
c.	What do you mean by alpha-beta pruning? Explain in brief.	2	3
d.	Differentiate between human vision and computer vision.	2	3
e.	Define the term prolog programming.	2	2
f.	Briefly explain forward chaining with example.	2	3
g.	What do you mean by Ontological engineering.	2	2
h.	Define Language models in AI.	2	4
i.	What do you understand by the term Unification?	2	2
J.	Write a short note on Decision tree.	2	5

## SECTION-B

2. Attempt any FOUR of the following:

10 x 3 = 30

Q.No	Question	Marks	CO
a.	What are the different categories of AI tasks? Explain.	10	1
b.	Explain the concept of Information Retrieval and Extraction.	10	2
c.	Discuss algorithm to convert predicate formula to clause form with proper example.	10	3
d.	Describe the working of AI agent with diagram.	10	2
e.	Explain A* and AO* algorithm.	10	2

## SECTION-C

3. Attempt any ONE part of the following:

Q.No	Question	Marks	CO
a.	What is an intelligent agent? Discuss the structure of an intelligent agent with the help of a diagram. Also explain the functioning of utility-based intelligent agent.	10	1
b.	Describe various foundation areas of Artificial Intelligence.	10	2

4. Attempt any ONE part of the following:

10x1 = 10

Q.No	Question	Marks	CO
a.	What do you mean by hill climbing? Explain different types of hill-climbing	10	2

	searching methods.		
<b>b.</b>	Discuss alpha beta pruning with example.	<b>10</b>	<b>2</b>

**5. Attempt any ONE part of the following:**

**10x1 = 10**

<b>Q.No</b>	<b>Question</b>	<b>Marks</b>	<b>CO</b>
a.	Explain BFS, DFS and UCS which is best for reaching destination.	10	3
b.	Discuss different types of Agents.	10	3

**6. Attempt any ONE part of the following:**

**10x1 = 10**

<b>Q.No</b>	<b>Question</b>	<b>Marks</b>	<b>CO</b>
a.	What is the difference between MIN MAX and Alpha Beta Pruning	10	2
b.	What is AI and also explain its Applications and advantages.	10	3

**7. Attempt any ONE part of the following:**

**10x1 = 10**

<b>Q.No</b>	<b>Question</b>	<b>Marks</b>	<b>CO</b>
a.	What do you mean by Bayesian network? Discuss steps to construct a Bayesian network.	10	5
b.	Convert the following into clause form- (i) <b>black</b> $\rightarrow \sim$ <b>white</b> (ii) <b>white</b> $\rightarrow \sim$ <b>black</b> $\wedge \sim$ <b>yellow</b> $\wedge \sim$ <b>red</b> (iii) <b>snow</b> $\rightarrow$ <b>white</b> (iv) <b>black</b> $\rightarrow$ <b>coal</b> $\vee$ <b>dark</b> (v) <b>white</b> $\rightarrow$ <b>bright</b>	10	5