

Hi-Tech Institute of Engineering & Technology

DEPARTMENT OF CSE
(SEM-3rd) SEMESTER 2023-24

Subject Code: KCA- 301

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.	Define Agent and explain 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.	Explain supervised and Unsupervised learning.	2	2
h.	Define Language models in AI.	2	4
i.	What do you understand by the term Reinforcement?	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.	Define HMM model.	10	3
d.	Describe the working of AI agent with daigram.	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 searching methods.	10	2

b.	Discuss alpha beta pruning with example.	10	2
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5. Attempt any ONE part of the following:

10x1 = 10

Q.No	Question	Marks	CO
a.	Explain BFS, DFS and UCS which is best for reaching destination.	10	3
b.	Discuss forward chaining and backward chaining with the help of example.	10	3

6. Attempt any ONE part of the following:

10x1 = 10

Q.No	Question	Marks	CO
a.	What is the difference between MIN MAX and Alpha Beta Pruning	10	2
b.	Explain the difference between PCA and LDA.	10	3

7. Attempt any ONE part of the following:

10x1 = 10

Q.No	Question	Marks	CO
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) black \rightarrow \sim white (ii) white \rightarrow \sim black \wedge \sim yellow \wedge \sim red (iii) snow \rightarrow white (iv) black \rightarrow coal \vee dark (v) white \rightarrow bright	10	5