Printed Page:- **Subject Code:- ACSAI0401**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: IV - THEORY EXAMINATION (20.....- 20.....)

Subject: Introduction to Artificial Intelligence

Time: 3 Hours **Max. Marks: 100**

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

1. *This Question paper comprises of* ***three Sections -A, B, & C.*** *It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*

2. *Maximum marks for each question are indicated on right -hand side of each question.*

3. *Illustrate your answers with neat sketches wherever necessary.*

4. *Assume suitable data if necessary.*

5. *Preferably, write the answers in sequential order.*

6. *No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.*

SECTION-A 20

1. Attempt all parts:-

1-a. Which of the given language is not commonly used for AI?(CO1,K1) 1

(a) LISP
(b) PROLOG
(c) Python
(d) Perl

1-b. _____ is considered one of the earliest successes in Artificial Intelligence, demonstrating the power of symbolic reasoning?(CO1,K1) 1

(a) Deep Learning
(b) AlphaGo
(c) ELIZA
(d) IBM Watson

1-c. Is optimality and completeness exist in bidirectional search algorithm?(CO2,K1) 1

(a) Yes
(b) No
(c) Sometimes yes, sometimes No
(d) Cannot be determined

1-d. _____ ialso known as informed search strategy.(CO2,K1) 1

(a) Simple search
(b) Heuristic search

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(c) Online search

(d) None of the mentioned

1-e. Semantic Network represents _____(CO3,K2) 1

(a) Syntactic relation between concepts

(b) Semantic relations between concepts

(c) All of the mentioned

(d) None of the mentioned

1-f. What is the primary objective of the monkey in the monkey banana problem?(CO3,K1) 1

(a) To reach the bananas

(b) To escape from the room

(c) To avoid the crocodile

(d) To solve a puzzle

1-g. In Hidden Markov model the additional variables are added at(CO4,K1) 1

(a) Temporal model

(b) Reality model

(c) Probability model

(d) All of the mentioned

1-h. What does Backward chaining rule known as?(CO4,K1) 1

(a) Goal driven

(b) Data driven

(c) Both A and B

(d) None of these

1-i. What are the composition for agents in artificial intelligence? (CO5,K2) 1

(a) Program

(b) Architecture

(c) Both Program and Architecture

(d) None of the above

1-j. The probabilistic reasoning depends upon_____.(CO5,K1) 1

(a) Estimation

(b) Observation

(c) Likelihood

(d) All of the mentioned

2. Attempt all parts:-

2.a. What is the purpose of the Turing Test?(CO1,K2) 2

2.b. What is heuristic search in Artificial Intelligence?(CO2,K2) 2

2.c. What do you mean by Production System?(CO3,K2) 2

2.d. Explain drawbacks in Semantic representation.(CO4,K2) 2

2.e.	What is an intelligent agent?(CO5,K1)	2
SECTION-B		30
3. Answer any five of the following:-		
3-a.	What are the various areas where AI (Artificial Intelligence) can be used?(CO1,K2)	6
3-b.	What are some common benefits of artificial intelligence technology.(CO1,K1)	6
3-c.	What are the basic attributes of types of training in a Learning System?(CO2,K2)	6
3-d.	Write differences between Uninformed and Informed Search Algorithm. Explain any one informed search technique in detail with algorithm and example.(CO2,K2)	6
3.e.	Explain Travelling Salesperson Problem with an example.(CO3,K3)	6
3.f.	Explain steps to develop an Expert System.(CO4,K2)	6
3.g.	How is Deep Learning better than Machine Learning? What are some of the most used applications of Deep Learning?(CO5,K2)	6
SECTION-C		50
4. Answer any one of the following:-		
4-a.	Discuss the problem solving techniques. Why problem solving is important in AI?(CO1,K1)	10
4-b.	Explain the Hill Climbing Algorithm in detail, discussing its working mechanism, types, advantages, disadvantages, and provide an example to illustrate how it works..(CO1,K2)	10
5. Answer any one of the following:-		
5-a.	Write down the difference between BFS and DFS.(CO2,K3)	10
5-b.	Define the Constraint Satisfaction Problems. Describe the different elements in the definition.(CO2,K2)	10
6. Answer any one of the following:-		
6-a.	What do you mean by Resolution in Predicate Logic? Explain using algorithm.(CO3,K2)	10
6-b.	You are given three jars with capacities of 8 liters, 5 liters, and 3 liters, respectively. The 8-liter jar is initially filled with 8 liters of water, and the goal is to divide the water into two jars, with 4 liters in each of the 8-liter and 5-liter jars. The 3-liter jar is empty and can be used as needed. Your task is to figure out the steps to achieve this division of water using these jars.(CO3,K3)	10
7. Answer any one of the following:-		
7-a.	What is Expert System? Explain its various parts.(CO4,K2)	10
7-b.	Explain the operations performed by agent to show the intelligent behavior through practical example. (CO4,K2)	10
8. Answer any one of the following:-		
8-a.	Explain the concept of Supervised Learning. Discuss its types, working	10

mechanism, and applications with suitable examples. (CO5,K2)

8-b.	How will you describe Genetic Algorithms? Compare the Single-Point and Two-Point crossover.(CO5,K2)	10

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