Printed Page:- 04 **Subject Code:- ACSAI0513**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: V - THEORY EXAMINATION (2023- 2024)

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. Strong Artificial Intelligence is (CO1) 1

(a) the embodiment of human intellectual capabilities within a computer

(b) a set of computer programs that produce output that would be considered to reflect intelligence if it were generated by humans

(c) the study of mental faculties through the use of mental models implemented on a computer

(d) all of the mentioned

1-b. Weak AI is (CO1) 1

(a) the embodiment of human intellectual capabilities within a computer.

(b) a set of computer programs that produce output that would be considered to reflect intelligence if it were generated by humans.

(c) the study of mental faculties through the use of mental models implemented on a computer.

(d) All of the above

1-c. The Set of actions for a problem in a state space is formulated by a _____ (CO2) 1

(a) Intermediate states

(b) Initial state

(c) Successor function, which takes current action and returns next immediate state

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(d) None of the mentioned

1-d. In which of the following situations might a blind search be acceptable? (CO2) 1

(a) real-life situation
(b) complex game
(c) small search space
(d) all of the mentioned

1-e. . How many proposition symbols are there in artificial intelligence? (CO3) 1

(a) 1
(b) 2
(c) 3
(d) 4

1-f. Artificial intelligence is about.(CO3) 1

(a) Putting your intelligence into Computer
(b) Programming with your own intelligence
(c) Making a Machine intelligent
(d) Playing a Game

1-g. Which of the following is/are correct advantages of Semantic nets?(CO4) 1

(a) Easy to understand
(b) Efficient in space requirement
(c) Easy to visualise
(d) All of the above

1-h. What is true about semantic net?(CO4) 1

(a) Way of representing knowledge
(b) Semantic network are Data Structure
(c) Semantic network are Data Type
(d) None of the above

1-i. Bayesian Belief Network is also known as ?(CO5) 1

(a) Belief network
(b) Decision network
(c) Bayesian model
(d) All of the above

1-j. The entries in the full joint probability distribution can be calculated by (CO5) 1

(a) Using variables
(b) Using information
(c) Both using variables and information
(d) None of these

2. Attempt all parts:-

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2.a.	Describe the role of well defined learning problems in AI. (CO1)	2
2.b.	Define advanteges of A* Search. (CO2)	2
2.c.	Explain why selection model used in hidden Markov model?(CO3)	2
2.d.	Draw and describe the architecture of expert system.(CO4)	2
2.e.	Define reinforcement Learning. (CO5)	2

SECTION-B 30

3. Answer any five of the following:-

3-a.	Explain the different types of Artificial Intelligence. (CO1)	6
3-b.	Explain the various areas where AI (Artificial Intelligence) can be used.(CO1)	6
3-c.	How will you differentiate between Blind Search and Heuristic Search? (CO2)	6
3-d.	Differentiate Uninformed Search(Blind search) and Informed Search(Heuristic Search) strategies.(CO2)	6
3.e.	Explain the Semantic Tableaux and Resolution in Propositional logic. (CO3)	6
3.f.	Define Expert System and how it is implemented in real life. Also list its pros and cons.(CO4)	6
3.g.	Explain planning with State Space Search in detail. (CO5)	6

SECTION-C 50

4. Answer any one of the following:-

4-a.	Define intelligent agent in AI. Explain various types of agent program with suitable example.(CO1)	10
4-b.	Explain computer vision in parlance to the artificial intelligence.(CO1)	10

5. Answer any one of the following:-

5-a.	Define What is the Minimax Algorithm. Explain the terminologies involved in a Minimax problem. (CO2)	10
5-b.	Show the working of the Minimax algorithm using Tic-Tac-Toe Game. (CO2)	10

6. Answer any one of the following:-

6-a.	Explain different types of Knowledge Representation.(CO3)	10
6-b.	Determine using tableau method, whether the following sets of expressions are mutually inconsistent consistent i.) PVQ, ~PV~Q ii.) P→Q.Q→R, R→S, P→S iii.) P^~Q, ~P^Q iv.) PVQ, ~P^~Q v.) ~PVQ, Q^~R,R→S, UV~S, P^~U. (CO3)	10

7. Answer any one of the following:-

7-a.	Explain the principles of probability theory with an example. (CO4)	10
7-b.	Describe Architecture of Expert System in detail.(CO4)	

8. Answer any one of the following:- 10

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8-a.	Explain the different parts of Knowledge Based Agent. (CO5)	10
8-b.	Differentiate between Genetic Algorithm and Neural Network. (CO5)	10

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