Printed Page:- Subject Code:- AMTCSE0102

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute)

Affiliated to Dr. A.P.J. Abdul Kalam Technical University, Uttar Pradesh, Lucknow

M.Tech

SEM: I - THEORY EXAMINATION (2021 - 2022)

Subject: Artificial Intelligence

Time: 03:00 Hours Max. Marks: 70

General Instructions:

1. All questions are compulsory. It comprises three Sections A, B and C.

- Section A - Question No- 1 is objective type question carrying 1 mark each & Question No- 2 is very short type questions carrying 2 marks each.
- Section B - Question No- 3 is Long answer type - I questions carrying 4 marks each.
- Section C - Question No- 4 to 8 are Long answer type - II questions carrying 7 marks each.
- No sheet should be left blank. Any written material after a Blank sheet will not be evaluated/checked.

SECTION A 15 x 1 = 15

1. Attempt all parts:-

1-a. LISP was created by? (CO1) 1

1. John McCarthy
2. Marvin Minsky
3. Alan Turing
4. Allen Newell and Herbert Simon

1-b. Which is also called single inference rule? (CO2) 1

1. Reference
2. Resolution
3. Reform
4. None of the mentioned

1-c. What is state space? (CO3) 1

1. The whole problem
2. Your Definition to a problem
3. Problem you design
4. Representing your problem with variable and parameter

1-d. A knowledge-based agent can combine general knowledge with current percepts to infer hidden aspects of the current state prior to selecting actions. (CO4) 1

1. TRUE
2. FALSE

1-e. What are taken into account of state-space search? (CO5) 1

1. Postconditions
2. Preconditions
3. Effects
4. Both Preconditions & Effects

2. Attempt all parts:-

2-a. What is Virtual Agent? (CO1) 2

2-b.	Define Compound Sentenses? (CO2)	2
2-c.	What is State Space? (CO3)	2
2-d.	What do you mean by backward chaining? (CO4)	2
2-e.	Expalin continuous planning? (CO5)	2

SECTION B 20

3. Answer any five of the following:-

3-a.	Explain Structure of Intelligent Agent? (CO1)	4
3-b.	Explain operator precedence rule used in Python. (CO1)	4
3-c.	What is Existential Quantifiers in First Order Logic? Explain with example. (CO2)	4
3-d.	Explain Universal Instantiation in FOPL with example. (CO2)	4
3-e.	Differentiate Informed & Uninformed search. Give examples. (CO3)	4
3-f.	Define semantic nets. What are the advantages and disadvantages related to it. (CO4)	4
3-g.	Specify conditional planning in AI? (CO5)	4

SECTION C 35

4. Answer any one of the following:-

4-a.	Describe the four categories under which AI is classified with examples. (CO1)	7
4-b.	What is NLP? What are the various components of NLP? (CO1)	7

5. Answer any one of the following:-

5-a.	Explain Missionaries-cannibals problem. How this problem is solved? (CO2)	7
5-b.	A knowledge base contains the following statements: Everyone who loves all animals is loved by someone. Anyone who kills an animal is loved by no one. Jack loves all animals. Either Jack or Curiosity killed Tuna, the cat. a. Convert these statements into FOL. b. Convert each FOL statement in (a) to CNF. c. Using resolution, prove that Curiosity killed the cat.(CO2)	7

6. Answer any one of the following:-

6-a.	Compare between Iterative deepening Heuristic Search & A*. Which one is better explain with suitable example. (CO3)	7
6-b.	Explain local search algorithm. How local search algorithm is applied to optimization problem? (CO3)	7

7. Answer any one of the following:-

7-a.	Write short note on partitioned nets. (CO4)	7
7-b.	Construct the architecture of expert system. (CO4)	7

8. Answer any one of the following:-

8-a.	What is multi agent planning in artificial intelligence? What is planning agent and types of planning? (CO5)	7
8-b.	What is Dempster Shafer theory in artificial intelligence? What is advantages the advantage of Dempster Shafer theory? (CO5)	7