Code No: 873AD

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
MCA III Semester Examinations, March/April - 2023
ARTIFICIAL INTELLIGENCE

Time: 3 Hours **Max.Marks:75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a)	Discuss in detail about simulated annealing search.	[5]
b)	Explain the concept of optimal decision in games.	[5]
c)	Describe the concept of knowledge engineering in first order logic.	[5]
d)	State and explain the concept of classical planning.	[5]
e)	Show how Inference is done using full joint distributions?	[5]

PART – B

(50 Marks)

2.a) What is an agent? Explain the basic kinds of agent program.
b) With the help of an example explain about greedy best first search? [5+5]

OR

3.a) Explain the process of local search in continuous spaces.
b) Describe in detail about the hill climbing search algorithm. [5+5]

4. Using constraint satisfaction solve the following Crypt-Arithmetic Problem.

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  TWO
 +TWO
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 FOUR
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[10]

OR

5.a) Explain Wumpus world logic problem with an example.
b) Illustrate the concepts of agents based on propositional logic. [5+5]

6. Represent the following statements in predicate logic:
a) Marcus tried to assassinate Caesar.
b) All Pompeian's were Roman.
c) All Romans were either loyal to Caesar or hated him.
d) Everyone is loyal to someone.
e) People only try to assassinate rulers they are not loyal to. [10]

OR

7.a) Compare and contrast between forward chaining and backward chaining?
b) Explain how reasoning is performed with default information? [5+5]

8. Illustrate the algorithms to explain how planning is performed using state space search. [10]

OR

9. Explain the concept of hierarchal learning with the help of examples. [10]

10. Construct a Bayesian Network and define the necessary CPTs for the given scenario.
We have a bag of three biased coins a,b and c with probabilities of coming up heads of 20%, 60% and 80% respectively. One coin is drawn randomly from the bag (with equal likelihood of drawing each of the three coins) and then the coin is flipped three times to generate the outcomes X1, X2 and X3. [10]

OR

11. With the help of an example explain how decision trees concept is used for learning? [10]

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