Code No: 155DY **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, January/February - 2023
ARTIFICIAL INTELLIGENCE
(Common to CESE, CSE(CS), CSE(DS))

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

Note: i) Question paper consists of Part A and 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, and b as sub-questions.

PART – A

(25 Marks)

1. a) What is intelligent agent? [2]
b) Explain about uniform cost search. [3]
c) What is constraint propagation? [2]
d) Explain about alpha-beta pruning. [3]
e) What is backward chaining? [2]
f) Differentiate between unification and lifting. [3]
g) Give the definition of classical planning. [2]
h) Explain about multi-agent planning. [3]
i) What is uncertain knowledge? [2]
j) What are the different forms of learning? [3]

PART – B

(50 Marks)

2.a) Explain about greedy best-first search technique.
b) What simulated annealing search? Explain. [5+5]

OR

3.a) Discuss about A* search and Bidirectional search techniques.
b) Explain in detail about online search agents. [5+5]

4.a) What are knowledge-based agents? How can a knowledge-based agent be described at three levels?
b) Give ontological and epistemological commitments of a propositional logic. [5+5]

OR

5.a) Define the constraint satisfaction problem and explain the backtracking search for CSPs. [5+5]
b) What is Adversarial Search? Explain adversarial search techniques.

6.a) Write about resolution in first-order logic.
b) What is Ontological engineering? Explain. [5+5]

OR

7.a) Explain the semantics of first-order logic in knowledge representation.
b) Explain about backward chaining in first-order logic. [5+5]

8. List and explain different classical planning approaches. [10]

OR

9.a) Explain forward state space search with an example.
b) Discuss about hierarchical planning with an example. [5+5]

10.a) Discuss in brief about Dempster-Shafer theory.
b) How to represent knowledge in an uncertain domain? Explain. [5+5]

OR

11.a) Explain Bayes' rule and its uses.
b) Discuss in brief about explanation-based learning. [5+5]

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