BRAINWARE UNIVERSITY

Term End Examination 2023
Programme – B.Tech.(CSE)-2017/B.Tech.(CSE)-2018/B.Tech.(CSE)-2019/B.Tech.(CSE)-2020
Course Name – Artificial Intelligence
Course Code - BCSE504B/PEC-501C
(Semester V)

Full Marks : 60   **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question)   1 x 15=15

1. *Choose the correct alternative from the following :*

(i) The technique 'semantic Networks' is

   a) A way of representing knowledge   b) Data structure
   c) Data type   d) None of these

(ii) The process of adjusting the weight factors in ANN

   a) Activation   b) Synchronization
   c) Learning   d) None of the mentioned

(iii) The application language to implement AI

   a) Prolog   b) LISP
   c) Python   d) All

(iv) The limited number of unambiguous states of the environment, then the nature of that environment is known as_____.

   a) Discrete   b) Continuous
   c) Static   d) Dynamic

(v) The value of alpha-beta search get updated-

   a) Along the path of search   b) Initial state itself
   c) At the end   d) None of the mentioned

(vi) The limitation of Hill-Climbing method-

   a) Local maxima   b) Ridges
   c) Plateau   d) All of above

(vii) State Space Search uses

   a) Initial node   b) Intermediate node
   c) Goal Node   d) All the above

(viii) Best approach for Game applications

   a) Linear approach   b) Heuristic approach (Some knowledge is stored)
   c) Random approach   d) An Optimal approach

(ix) The set of limitations become as set of rules to find problem's solution known as
    a) Constraints Satisfaction Problems   b) Uninformed Search Problems
    c) Local Search Problems   d) All of the mentioned

(x) Constraint satisfaction problems uses following concepts for finite domain(s)-
    a) Search Algorithms   b) Heuristic Search Algorithms
    c) Greedy Search Algorithms   d) All of the mentioned

(xi) If Alpha - Beta pruning is advancement of Minimax algorithm then
    a) Alpha = max   b) Beta = min
    c) Beta = max   d) Both Alpha = max & Beta = min

(xii) The statement "The room temperature is hot" here the 'hot' can be represented by
_____
    a) Fuzzy set   b) Crisp set
    c) Both fuzzy and crisp set   d) None of these

(xiii) The process of Defuzzification is
    a) Fuzzy set to crisp set   b) Crisp to fuzzy set
    c) Both a. and b.   d) None

(xiv) Association process is a example of
    a) Semi-supervised learning models.   b) Reinforcement learning models
    c) Supervised learning models.   d) unsupervised learning models.

(xv) Pattern recognition system is done by
    a) Expert Systems   b) Natural Language Processing
    c) Neural Networks   d) Robotics

Group-B
(Short Answer Type Questions)
3 x 5=15

2. Explain the problems in hill climbing search methods due to which they may fail to find the solution? (3)

3. Classify different types of agents in AI? (3)

OR

Describe AND-OR graph with an example. (3)

4. Explain Best First Search with the help of algorithm (3)

OR

Explain Knowledge Representation with an example? (3)

5. Select the components of the production system? (3)

OR

Justify that how machine learning is related to AI? (3)

6. Prepare a short note about alpha-beta pruning. (3)

OR

Write and explain the characteristics of AI Problem (3)

Group-C
(Long Answer Type Questions)
5 x 6=30

7. Explain depth first search with an exmple? (5)

8. Define Expert Systems with an example. (5)

OR

Define the need of Artificial Intelligence. (5)

9. Discuss the importance of A* search method. (5)

OR

Explain under which circumstances will iterative deepening perform much worse than depth first search? (5)

10. Illustrate constraint satisfaction problems and how they are useful for AI? (5)

OR

Explain how Artificial Intelligence is related to human based nature?   (5)
11. Mention the difference between DFS and DFS with iterative deepening   (5)

OR

Explain with the help of an example how inheritance is achieved in Semantic networks?   (5)
12. "Prepare a semantic network with the help of a diagram for the following set of   (5)
knowledge: ABC is a university. CSE, ECE and EEE are three departments in it. Sudha
works in department of CSE.CSE is located in C block. She is a professor. Every professor
engages lectures and has PhD qualification. Sudha's area of interest in AI."

OR

Estimate the properties of Heuristics Search Algorithm   (5)

****