BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – B.Tech.(CSE)-AIML-2021/B.Tech.(CSE)-AIML-2022
Course Name – Artificial Intelligence for Real World Application
Course Code - PCC-CSM503
(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) Identify the key component used to improve the agent's performance?
a) Perceiving b) Learning
c) Observing d) Listening

(ii) Select the agent name that does the problem generator concept
a) Observing agent b) Learning agent
c) Reflex agent d) Passive agent

(iii) Interpret the Key task of a problem-solving agent
a) To find out which sequence of action will get it to the goal state b) Solve the given problem and reach to goal
c) Both a and b d) None of these

(iv) Identify the agents select actions or task on the basis of priority
a) Goal based agents b) Model based reflex agents
c) Utility based agents d) None of these

(v) Express which one among the following can be created by the sum of initial state and goal state.
a) Problem Space b) Problem Space Graph
c) Problem instance d) Problem abstraction

(vi) Select the type of agent that enables the deliberation about the computational entities and actions
a) Hybrid b) Relational
c) Reflective d) None of the mentioned

(vii) Recognize the concept that hides internal detail representation

a) Extraction
b) Information Retrieval
c) Abstraction
d) Data mining

(viii) Identify which one is applicable for AI

a) System think like human
b) System work like human
c) Option A and B
d) None of these

(ix) Identify which of the following is/are the application language to implement AI

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

(x) Find where the Intelligence is considered to be higher than human beings

a) narrow AI
b) weak AI
c) general AI
d) strong AI

(xi) Identify which of the following is an application of Artificial Intelligence?

a) It helps to exploit vulnerabilities to secure the firm
b) Easy to create a website
c) Language understanding and problem-solving (Text analytics and NLP)
d) Repairing a computer

(xii) Select the option from the following that indicate the State space is composition of _____

a) Decision-making algorithm
b) Learning algorithm
c) Both Decision-making & Learning algorithm
d) Complex algorithm

(xiii) Identify which of the heuristic algorithm is similar to minimax search

a) Depth-first search
b) Breadth-first search
c) Hill climbing
d) None of these

(xiv) Identify which data structure is used by Beat First Search

a) Stack
b) Queue
c) Priority queue
d) Linked list

(xv) Choose from the following the AI technique mimics the structure of the human brain.

a) Expert Systems
b) Reinforcement Learning
c) Neural Networks
d) NLP

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Specify briefly about various field of work and study where AI is being implemented. (3)
3. Describe 2 use cases with respect to the machine learning context (3)
4. Write the difference between Simple Reflex agent and Model-based reflex agent. (3)
5. Define probabilistic reasoning and give an example of its application (3)
6. Classify the key objectives of analyzing a time series in AI. (3)

OR

Infer the procedure of machine learning models to be utilized for time series analysis. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Explain syllogism in the context of deductive reasoning (5)
8. Explain the concept of a Markov blanket in a Bayesian network (5)
9. Describe dfferent AI agents. (5)

10. Justify the optimization of Alpha-Beta Pruning in detail compared to the Minimax algorithm with an example in a game tree. (5)
11. You are given two jugs, a 4-gallon one and a 3-gallon one. Neither has any measuring mark on it. There is a pump that can be used to fill the jugs with water. How can you get exactly 2 gallons of water into the 4-gallon jug? Describe production rules, represent state space diagram and give a possible solution. (5)
12. Analyze constraint satisfaction problems and explain how they are useful for AI. (5)

OR

Explain the utility of heuristic search over blind search including time complexity. (5)

****