

KATHMANDU UNIVERSITY  
End Semester Examination  
January/February, 2025

Marks Scored:

Level : B.E./B.Sc.  
Year : IV

Course : COMP 472  
Semester : I

Exam Roll No. : 32018

Time: 30 mins.

F. M. : 10

Registration No.: 028520-21

Date : 09 FEB 2025

SECTION "A"

[20Q. × 0.5 = 10 marks]

Choose the most appropriate answer and **encircle**.

1. What is the main objective of AI?  
a. Enhance hardware efficiency  
b. Mimic human intelligence  
c. Improve network security  
d. Develop new programming languages
2. Which of the following is an uninformed search technique?  
a. A\* search  
b. Hill climbing  
c. Depth-first search  
d. Genetic algorithm
3. In AI, an agent's environment is defined as:  
a. The programming language it uses  
b. Everything external that affects the agent  
c. The internal structure of the agent  
d. The performance measure of the agent
4. Which of these is not a property of a good performance measure for agents?  
a. Completeness  
b. Optimality  
c. Flexibility  
d. Execution speed
5. What does "iterative deepening search" combine?  
a. Depth-first and breadth-first search  
b. Local search and adversarial search  
c. A\* search and genetic algorithms  
d. Backpropagation and Boltzmann machines
6. The minimax procedure is used in:  
a. Probabilistic reasoning  
b. Logical inference  
c. Adversarial search  
d. Neural networks
7. What is the primary advantage of A\* search over greedy search?  
a. It uses less memory  
b. It guarantees optimality  
c. It is faster  
d. It avoids backtracking
8. In propositional logic, a well-formed formula must:  
a. Be valid  
b. Contain no connectives  
c. Follow syntactic rules  
d. Be consistent
9. Which of the following is a property of a horn clause?  
a. Contains exactly two literals  
b. Contains at most one positive literal  
c. Contains no quantifiers  
d. Is always true
10. Which network uses a self-organizing map?  
a. Boltzmann machine  
b. Hopfield network  
c. Kohonen network  
d. Perceptron

11. In Fuzzy Learning, the learning process focuses on:
  - a. Binary decisions
  - b. Non-crisp values
  - c. Logical resolution
  - d. Deterministic networks
12. Backpropagation in neural networks is used to:
  - a. Minimize a cost function
  - b. Enhance input weights
  - c. Randomize outputs
  - d. Reduce processing time
13. Which of the following is not a learning approach in AI?
  - a. Supervised learning
  - b. Reinforcement learning
  - c. Fuzzy clustering
  - d. Static learning
14. Bayes' theorem is mainly used in:
  - a. Logical inference
  - b. Probabilistic reasoning
  - c. Search optimization
  - d. Semantic nets
15. The Boltzmann machine is a type of:
  - a. Probabilistic graphical model
  - b. Recurrent neural network
  - c. Feedforward network
  - d. Self-organizing map
16. Which of these uses a genetic algorithm?
  - a. Semantic networks
  - b. Optimization problems
  - c. Logical inference
  - d. Neural network training
17. What does "alpha-beta pruning" aim to achieve?
  - a. Increase search depth
  - b. Minimize search space
  - c. Improve statistical reasoning
  - d. Simplify logical representation
18. Which AI concept uses "frames"?
  - a. Semantic networks
  - b. Structured knowledge representation
  - c. Statistical reasoning
  - d. Local search optimization
19. The "Hopfield network" is mainly used for:
  - a. Pattern recognition
  - b. Logical reasoning
  - c. Causal inference
  - d. Search optimization
20. Decision trees are best suited for:
  - a. Logical inference
  - b. Structured knowledge representation
  - c. Classification problems
  - d. Probabilistic reasoning

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