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(FOR THE CANDIDATES ADMITTED DURING THE ACADEMIC YEAR 2022-23 ONLY)

SUBJECT CODE 22 UCT 6E7

REG.NO.

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI

END-OF-SEMESTER EXAMINATIONS : MAY – 2025

B.Sc. – COMPUTER TECHNOLOGY **MAXIMUM MARKS: 50**

VI SEMESTER **TIME : 3 HOURS**

PART – III

ARTIFICIAL INTELLIGENCE

SECTION – A (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS. (K1)

1. Which of the following definitions correctly defines the State-space in an AI system?
   (a) A state space can be defined as the collection of all the problem states
   (b) A state space is a state which exists in environment which is in outer space
   (c) A state space is the total space available for the agent in the state
   (d) All of the above

2. "In AI systems, Knowledge can be represented in two ways. What are these two ways?
   (i) Machine Logic (ii) Predicate Logic (iii) Propositional Logic (iv) Compound Logic"
   (a) i. and ii. (b) i. and iii. (c) ii. and iii. (d) iii. and iv.

3. What is the complexity of minimax algorithm?
   a) Same as of DFS b) Space – bm and time – bm
   c) Time – bm and space – bm d) Same as BFS

4. What will backward chaining algorithm will return?
   a) Additional statements b) Substitutes matching the query
   c) Logical statement d) All of the mentioned

5. What is the use of '=' in prolog programming?
   (a) unification (b) arithmetic evaluation
   (c) reduction (d) Both a and b

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES (K2)

6. Write the use of Hill climbing algorithm.
7. Define backward reasoning.
8. What is alpha-beta pruning?
9. List the characteristics of Expert System.
10. Convert the following English sentence into Prolog equivalent.
    Priya like food if they are delicious.

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SECTION – B (5 X 3 = 15 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K3)

11. a) Enumerate the applications of AI.

(OR)

b) Give short notes on Heuristic Search Techniques.

12. a) Elucidate Representations and Mappings.

(OR)

b) Differentiate between Procedural and Declarative knowledge.

13. a) Illustrate about alpha-beta cut offs.

(OR)

b) Discuss the concept of game playing

14. a) Elucidate the architecture of Expert System.

(OR)

b) Describe the life cycle of an expert system.

15. a) Illustrate the Arithmetic operators in Prolog.

(OR)

b) Demonstrate the concept of recursion in Prolog.

SECTION – C (5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K4 (Or) K5)

16. a) Elaborate AI techniques.

(OR)

b) Explain the principles of best first search algorithm.

17. a) Discuss the approaches to knowledge representation.

(OR)

b) Distinguish forward reasoning and backward reasoning.

18. a) Illustrate the idea of conceptual dependency.

(OR)

b) Demonstrate the minmax search procedure.

19. a) Give your views about Knowledge Engineering.

(OR)

b) Explain how backward chaining works?

20. a) Explain the control structure in Prolog

(OR)

b) Provide an overview of backtracking.

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