| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| b.i. | Describe about knowledge and reasoning. | 5 | 3 | 3 | 8 |
| ii. | Define about unification. | 5 | 3 | 3 | 8 |
| 29. a.i. | Explain about formed reasoning with example. | 5 | 4 | 4 | 11 |
| ii. | Give notes on block world problem. | 5 | 4 | 4 | 11 |
| | **(OR)** | | | | |
| b.i. | Write note on simple planning agent. | 5 | 3 | 4 | 11 |
| ii. | Define mean-end analysis. | 5 | 3 | 4 | 8 |
| 30. a.i. | Explain about partial order planning. | 5 | 3 | 5 | 8 |
| ii. | Write short notes on knowledge based planning. | 5 | 3 | 5 | 7 |
| | **(OR)** | | | | |
| b.i. | Explain about expert system architecture. | 5 | 3 | 5 | 4 |
| ii. | Define about expert system shells. | 5 | 3 | 5 | 5 |

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**B.Tech. DEGREE EXAMINATION, JUNE 2022**

Sixth Semester

18CSC365J – ARTIFICIAL INTELLIGENCE

*(For the candidates admitted from the academic year 2018-2019 to 2019-2020)*

**Note:**

(i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.

(ii) **Part - B** should be answered in answer booklet.

Time: 2½ Hours

Max. Marks: 75

| | | Marks | BL | CO | PO |
|---|---|---|---|---|---|
| | **PART – A (25 × 1 = 25 Marks)** | | | | |
| | Answer **ALL** Questions | | | | |
| 1. | How many types of informed search method are in artificial intelligence?<br>(A) 1 (B) 2<br>(C) 3 (D) 4 | 1 | 4 | 1 | 5 |
| 2. | The task environment of an agent may consists of _____.<br>(A) Sensors (B) Voice<br>(C) Picture (D) Animation | 1 | 2 | 1 | 5 |
| 3. | Which depends on the precepts and actions available to the agent?<br>(A) Agent (B) Sensor<br>(C) Design problem (D) Short term | 1 | 4 | 1 | 5 |
| 4. | Which search agent operates by interleaving computation and action?<br>(A) Offline search (B) Online search<br>(C) Breadth-first search (D) Depth-first search | 1 | 1 | 1 | 4 |
| 5. | Which search uses the problem specific knowledge beyond the definition of the problem?<br>(A) Informed search (B) Depth-first search<br>(C) Breadth-first search (D) Uniformed search | 1 | 4 | 1 | 4 |
| 6. | In a depth-first traversal of a graph G with n vertices, k edges are marked as tree edges. The number of connected components in G is<br>(A) k (B) k+1<br>(C) n–k–1 (D) n–k | 1 | 1 | 2 | 4 |
| 7. | For an undirected graph G with n vertices and e edges, the sum of the degrees of each vertex is<br>(A) ne (B) 2n<br>(C) 2e (D) e^n | 1 | 4 | 2 | 4 |
| 8. | When hill-climbing algorithm terminate?<br>(A) Stopping criterion met (B) Global min/max is achieved<br>(C) No neighbor has higher value (D) Bo backtracking | 1 | 1 | 2 | 4 |

9. Hill climbing sometimes called _____ because it grabs a good neighbor state without thinking ahead about where to go next. 1 1 2 4
   (A) Needy local search (B) Heuristic local search
   (C) Greedy local search (D) Optimal local search

10. In KANSAS+OHIO = OREGON then find the value of G+R+O+S+S 1 1 2 4
   (A) 7 (B) 8
   (C) 9 (D) 10

11. General games involves _____. 1 1 3 4
   (A) Single-agent (B) Multi-agent
   (C) Neither single-agent nor multi-agent (D) Only-single agent and multi-agent

12. Which search is equal to minimax search but eliminates the branches that can't influence the final decision? 1 1 3 4
   (A) Depth-first search (B) Breadth-first search
   (C) Alpha-beta pruning (D) Genetic search

13. What is the total number of logical connectives in artificial intelligence? 1 1 3 4
   (A) 7 (B) 3
   (C) 6 (D) 5

14. Which is a refutation complete inference procedure for a propositional logic? 1 1 3 4
   (A) Clauses (B) Variables
   (C) Propositional resolution (D) Proposition

15. _____ is a theorem proving technique that proceeds by building refutation proofs. 1 1 3 4
   (A) Variable (B) Logic
   (C) Resolution (D) Theory

16. How can be the goal is thought of in backward chaining algorithm? 1 1 4 4
   (A) Queue (B) List
   (C) Vector (D) Stack

17. Which algorithm are in more similar to backward chaining algorithm? 1 1 4 4
   (A) Depth-first search algorithm (B) Breadth-first search algorithm
   (C) Hill-climbing search algorithm (D) A 0 star algorithm

18. The process by which the brain incrementally orders actions needed to complete a specific tasks is referred as _____. 1 1 4 4
   (A) Planning problem (B) Partial order planning
   (C) Total order planning (D) Both planning problem and partial order

19. _____ analysis is problem solving techniques used in artificial intelligence for limiting search in AI programs. 1 2 4 4
   (A) Mean-end (B) Mean-start
   (C) Mean-average (D) Mean-middle





20. Which is a mixture of backward and forward search technique? 1 1 4 4
   (A) Mean-end (B) A0 star
   (C) A * (D) Sub goal

21. What are not present in finish actions? 1 2 5 4
   (A) Preconditions (B) Effect
   (C) Finish (D) Cause

22. How many possible plans are available in partial-order solution? 1 1 5 4
   (A) 5 (B) 6
   (C) 7 (D) 9

23. Which university introduced expert systems? 1 1 5 4
   (A) Massachusetts Institute of Technology (B) University of Oxford
   (C) Stanford University (D) University of Cambridge

24. Which of the following is not a capabilities of expert systems? 1 1 5 4
   (A) Advising (B) Demonstrating
   (C) Explaining (D) Expanding

25. Which of the following is incorrect application of expert systems? 1 1 5 4
   (A) Design domain (B) Monitoring systems
   (C) Knowledge domain (D) Systems domain

**PART – B (5 × 10 = 50 Marks)** Marks BL CO PO

Answer **ALL** Questions

26. a.i. Write about problem space and search. 5 3 1 4

   ii. Give details about production system. 5 3 1 5

**(OR)**

   b.i. Give short notes on intelligent agents. 5 3 1 8

   ii. Goals based agents explain with example. 5 3 1 8

27. a.i. Explain search techniques. 5 3 2 7

   ii. Compare $A^*$ algorithm and $A0^*$ algorithm. 5 4 2 7

**(OR)**

   b.i. Define hill climbing search. 5 4 2 3

   ii. If point + zero = energy , then E + N + E + R + G + Y = ? 5 4 2 4

28. a.i. Explain min-max algorithm. 5 3 3 5

   ii. Give notes on alpha-beta pruning. 5 3 3 6

**(OR)**