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B.Tech. DEGREE EXAMINATION, DECEMBER 2023
Fourth Semester

18MEO117T – ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS

(For the candidates admitted from the academic year 2020-2021 to 2021-2022)

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 & Part - C** should be answered in answer booklet.

Time: 3 hours

Max. Marks: 100

PART – A (20 × 1 = 20 Marks)

Marks BL CO PO

Answer **ALL** Questions

- | | | | | |
|--|---|---|---|---|
| 1. Which company developed the AI chess game to rival against the world champion of chess?
(A) IBM's deep blue
(B) Cognizant
(C) TCS
(D) Accenture | 1 | 1 | 1 | 1 |
| 2. _____ includes what we know about our own performance as cognitive processors.
(A) Meta-knowledge
(B) Performance knowledge
(C) Standard knowledge
(D) Specific knowledge | 1 | 1 | 1 | 1 |
| 3. Which one among is noted as weak AI?
(A) Machine learning
(B) General AI
(C) BOT AI
(D) Narrow AI | 1 | 1 | 1 | 1 |
| 4. Cognitive science induces philosophy _____ and psychology.
(A) Program
(B) Linguistics
(C) Database
(D) Algorithm | 1 | 2 | 1 | 1 |
| 5. Which search method takes less memory?
(A) Depth-first search
(B) Breadth-first search
(C) Linear search
(D) Optimal search | 1 | 2 | 2 | 1 |
| 6. Which is the best way to go for game playing problem?
(A) Linear approach
(B) Heuristic approach
(C) Random approach
(D) An optimal approach | 1 | 1 | 2 | 1 |
| 7. Which search uses the problem specific knowledge beyond the definition of the problem?
(A) Informed search
(B) Depth-first search
(C) Breadth-first search
(D) Uniformed search | 1 | 1 | 2 | 1 |
| 8. Which search is complete and optimal when h(n) is consistent?
(A) Best-first search
(B) Depth-first search
(C) Both best-first and depth-first search
(D) A* search | 1 | 2 | 2 | 1 |

9. What is the consequence between a node and its predecessors while creating Bayesian network? 1 1 3 1
 (A) Functionally dependent (B) Dependent
 (C) Conditionally independent (D) Both functionally and conditionally dependent
10. What is defined by a set of strings? 1 1 3 1
 (A) Signs (B) Formal language
 (C) Communication (D) Both A and B
11. Dependent what is the complex system of structured message? 1 1 3 1
 (A) Languages (B) Words
 (C) Signs (D) Speech
12. In linguistic morphology _____ is the process for reducing inflected words to their root form. 1 2 3 1
 (A) Rooting (B) Stemming
 (C) Text-proofing (D) Both rooting and stemming
13. In a rule based system, what is the form of procedural domain knowledge? 1 1 4 1
 (A) Production rules (B) Rule interpreters
 (C) Meta-rules (D) Control rules
14. In LISP, the function return t if is a CONS cell and nil otherwise 1 2 4 2
 (A) (cons) (B) (consp)
 (C) (eq) (D) (cous=)
15. In LISP, the following function (minusp(-20 4 8 8 1)) return? 1 2 4 2
 (A) T (B) F
 (C) Nil (D) -20
16. In LISP _____ is used create array 1 1 4 1
 (A) Join-array (B) Create-array
 (C) Make-array (D) Merge-array
17. _____ are knowledge based system to which present rules are applied to solve a particular problem 1 1 5 1
 (A) ES (B) AI
 (C) KBS (D) Base rule 0
18. Which condition is used to cease the growth of forward chaining? 1 1 5 1
 (A) Atomic sentences (B) Complex sentences
 (C) No further inference (D) All of the mentioned
19. Which is mainly used for automated seasoning? 1 1 5 1
 (A) Backward chaining (B) Forward chaining
 (C) Logic programming (D) Parallel programming
20. Which algorithm are in more similar to backward chaining algorithm? 1 1 5 1
 (A) Depth-first search algorithm (B) Breadth-first search algorithm
 (C) Hill climbing search algorithm (D) All of the mentioned

PART – B (5 × 4 = 20 Marks)

Answer **ANY FIVE** Questions

	Marks	BL	CO	PO
21. List out the types of agents.	4	1	1	1
22. Classify the search algorithm.	4	1	2	1
23. Describe the properties of search algorithm.	4	1	2	1
24. Compare the difference between NLP and NLG.	4	1	3	1
25. Explain about anaphoric and pragmatic ambiguity.	4	2	3	1
26. Describe “write-char”, “write-string” and “write-line” output function in detail.	4	2	4	2
27. Explain backward chaining with example.	4	1	5	1

PART – C (5 × 12 = 60 Marks)

Answer **ALL** Questions

	Marks	BL	CO	PO
28. a. Define problem solving? Explain problem formulation and representation with example.	12	2	1	1
(OR)				
b. Compare algorithm and machine learning with relevant example.	12	1	1	1
29. a. Explain the following:		1	2	1
(i) Breadth first search	6			
(ii) Depth first search	6			
(OR)				
b. Explain hill climbing algorithm with example.	12	1	2	1
30. a. Write a short note on indexing and retrieval technique in knowledge organization.	12	1	3	1
(OR)				
b. Explain in detail about how integration of knowledge in memory organization system.	12	1	3	1
31. a. Explain all basic function group of LISP with their commands and suitable examples.	12	2	4	2
(OR)				
b. List out with examples the features and properties of LISP.	12	1	4	1
32. a. Explain the steps involved in the development of expert system.	12	1	5	1
(OR)				
b. Discuss acquisition module frame of expert systems in details.	12	1	5	1

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