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Reg. No. :

**Code No. : 20264 E Sub. Code : JMCA 5 A/
SECA 5 A**

B.C.A. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2021

Fifth Semester

Computer Application

Major Elective — ARTIFICIAL INTELLIGENCE

(For those who joined in July 2016-2019)

Time : Three hours

Maximum : 75 marks

PART A — ($10 \times 1 = 10$ marks)

Answer ALL the questions.

Choose the correct answer :

1. What is the term used for describing the judgemental or commonsense part of problem solving?
 - (a) Heuristic
 - (b) Critical
 - (c) Value based
 - (d) Analytical

2. A production rule consists of
 - (a) A set of rule
 - (b) A sequence of steps
 - (c) Both (a) and (b)
 - (d) Directly getting solution
3. A* algorithm is based on
 - (a) Breadth-First Search
 - (b) Depth-First Search
 - (c) Best-First Search
 - (d) Hill climbing
4. What is the best way to go for Game playing problem?
 - (a) Linear approach
 - (b) Heuristic approach
 - (c) Random approach
 - (d) Optimal approach

5. How do you represent “All dogs have tails”?
- (a) $\forall x: \text{dog}(x) \rightarrow \text{tail}(x)$
 - (b) $\forall x: \text{dog}(x) \rightarrow \text{tail}(y)$
 - (c) $\forall x: \text{dog}(y) \rightarrow \text{tail}(x)$
 - (d) $\forall x: \text{dog}(y) \rightarrow \text{tail}(y)$
6. _____ is passive knowledge in the form of statements of facts about the world.
- (a) Declarative
 - (b) Procedural
 - (c) Heuristic
 - (d) Inferential
7. _____ is the ability to represent the required knowledge.
- (a) Representational Adequacy
 - (b) Inferential Adequacy
 - (c) Inferential Efficiency
 - (d) Acquisitional Efficiency
8. _____ represents truth over time in First order predicate logic.
- (a) Temporal
 - (b) Modal
 - (c) Higher order logic
 - (d) Non- monotonic

9. General games involves
- (a) Single-agent
 - (b) Multi-agent
 - (c) Neither single-agent nor Multi-agent
 - (d) Only single-agent and Multi-agent
10. A game can be formally defined as a kind of search problem with the following components.
- (a) Initial State
 - (b) Successor Function
 - (c) Terminal test
 - (d) All of the mentioned

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) What is search problem in artificial intelligence?

Or

- (b) What do you mean by completeness of a search in artificial intelligence?

12. (a) What is best-first search in artificial intelligence?

Or

- (b) What is Optimal path in AI?

13. (a) What is knowledge representation technique?

Or

- (b) How are frames used in knowledge representation?

14. (a) What is logic programming and name a few logic programming languages?

Or

- (b) What is forward and backward reasoning?

15. (a) How does Minimax algorithm work?

Or

- (b) What is waiting for Quiescene? Explain.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain the four categories of a production system.

Or

- (b) Explain the water jug problem and its solution using production rules.

17. (a) What is problem reduction? Explain it in detail.

Or

- (b) How do you do mean end analysis? Give some procedure.

18. (a) What are the qualities of a good knowledge representation system?

Or

- (b) How can we speed up the resolution process?

19. (a) What is logic programming? Name a few logic programming languages.

Or

- (b) What is unification algorithm? Explain its terms.

20. (a) How does Alpha Beta Pruning improve search procedure?

Or

- (b) What are all the types of Games in AI? Explain in detail.
