Reg. No.															

B.Tech. DEGREE EXAMINATION, JUNE 2019
1st to 7th Semester

15CS401 – ARTIFICIAL INTELLIGENCE
(For the candidates admitted during the academic year 2015 - 2016 to 2017 - 2018)

Note:
(i) **Part - A** should be answered in OMR sheet within first 45 minutes and OMR sheet should be handed over to hall invigilator at the end of 45th minute.
(ii) **Part - B** and **Part - C** should be answered in answer booklet.

Time: Three Hours Max. Marks: 100

PART – A (20 × 1 = 20 Marks)
Answer **ALL** Questions

1. _____ deal with the computer knowledge-based models for AI
   (A) Cognitive models (B) Computational models
   (C) Platform models (D) Task models

2. The strategic computing is a project of the
   (A) National science foundation (B) Defense advanced research projects agent
   (C) Jet foundation (D) Propulsion foundation

3. The main task of a problem solving agent is
   (A) Goal based agents (B) Task problem solving
   (C) Improving (D) Completeness

4. Which is not the commonly used programming language for AI?
   (A) Javascript (B) Java
   (C) Lisp (D) Perl

5. A search algorithm takes ____ as an input and returns _____ as an output.
   (A) Input, output (B) Solution, state
   (C) Problem, solution (D) Sequence of actions, parameters

6. A problem in a search space is defined by one of these state.
   (A) Goal state (B) Initial state
   (C) Intermediate state (D) Agent state

7. Which search strategy is also called as blind search?
   (A) Uninformed search (B) Informed search
   (C) Simple reflex search (D) Search method

8. A^* algorithm is based on
   (A) BFS (Breadth-First Search) (B) Depth-First Search
   (C) Best-First Search (D) Hill Climbing

9. Knowledge and reasoning also play a crucial role in dealing with ____.
   (A) Completely observable (B) Aptitude observable
   (C) Test observable (D) Partially observable

10. Inference algorithm is complete only if
    (A) It can derive any sentence
    (B) Reap any word
    (C) It can derive any sentence that is an entailed version and truth preserving
    (D) Form as a group

11. Graph used to represent semantic network is _____.
    (A) Directed graph
    (B) Undirected graph
    (C) Dag
    (D) Directed complete graph

12. First order logic is also known as
    (A) Quantification theory
    (B) Many sorted logic
    (C) Evaluated logic
    (D) Order calculus

13. _____ is required to convert objectives into actions.
    (A) Intelligent systems
    (B) Planning
    (C) Goal based systems
    (D) Factors based systems

14. States are represented as _____.
    (A) Formulation
    (B) Actions
    (C) Conjunction
    (D) Sub goals

15. _____ is one of the important concepts that is used for problem solving and planning.
    (A) Pre condition analysis
    (B) Means ends analysis
    (C) Forward chaining
    (D) Backward chaining

16. _____ involves use of multiple agents to carry out the planning tasks
    (A) Multi agent planning
    (B) Sub global state
    (C) Avoid conflicts
    (D) Availability resources

17. Zero sum game has to be a _____ game.
    (A) Single player
    (B) Two player
    (C) Multi player
    (D) Agent

18. _____ is capable of capturing different aspects of the game.
    (A) High level
    (B) Acquire game
    (C) B scores
    (D) Knowledge structure

19. ____ pruning algorithm provides mechanism to decrease the number of count of the nodes.
    (A) Alpha-beta
    (B) Beta-gamma
    (C) Minmax pruning
    (D) Leaf node

20. Adversarial search problems use
    (A) Neither competitive nor co-operative environment
    (B) Competitive environment
    (C) Co-operative environment
    (D) Process environment

PART – B (5 × 4 = 20 Marks)
Answer **ANY FIVE** Questions

21. Write short notes on history of artificial intelligence.

22. Construct an algorithm for solving tic-tac-toe problem by applying AI technique.

23. Differentiate knowledge representation and knowledge based agents.

24. Write short notes on means-ends analysis.

25. Define game playing and concepts of game playing.

26. Write short notes on reactive planning.

27. Explain problem reduction methods.

PART – C (5 × 12 = 60 Marks)
Answer **ALL** Questions

28. a. Describe about the characteristics to be analyzed for solving problems in AI.

(OR)

b. Solve the given problem by explaining the operations involved in it. Problem: We are given two jugs, a 4-gallon one and 3-gallon one. Neither has any measuring marker on it. There is a pump that can be used to fill the jugs with water. How can we get exactly 2 gallons of water into the 4-gallon jug?

29. a. With suitable examples, explain uninformed search methods.

(OR)

b. Explain informed search with suitable examples.

30. a. Explain unification and lifting with the inference in First Order Logic (FOL).

(OR)

b. Discuss semantic networks, partitioned semantic networks and frames.

31. a. Discuss planning problem with suitable example.

(OR)

b. Explain syntactic and semantic analysis in NLP with an example.

32. a. Illustrate expert system architecture and with its types.

(OR)

b. Explain alpha-beta pruning, game theory problem with example.

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