b. Discuss graphplan algorithm in detail.

32. a. With example, explain Prissioners dilemma and rock paper scissor game.

(OR)

b. Explain alpha beta pruning with example.

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Reg. No.														

B.Tech. DEGREE EXAMINATION, MAY 2019
3rd to 8th 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. AI models which are based on sign processes and communication are
   (A) Semiotic models (B) Statistical models
   (C) Maze model (D) Formal model

2. The field that investigates the mechanics of human intelligence is
   (A) History (B) Sociology
   (C) Cognitive science (D) Psychology

3. First step in problem-solving process is
   (A) Problem identification (B) Problem space
   (C) Task knowledge (D) State space

4. A fully observable problem belongs to the category of
   (A) Multi-state problem (B) Two-state problem
   (C) Single-state problem (D) Many-state problem

5. State space is defined as
   (A) Finding a route to goal state (B) Collection of all possible configurations of system
   (C) Set of arcs alone (D) Set of nodes

6. When an algorithm finds an answer in some finite time it is
   (A) Admissible (B) Optimal
   (C) Complete (D) Complex

7. A^* search is an extension of
   (A) Best first search (B) Depth first search
   (C) Breadth first search (D) Depth limited search

8. Search space at a higher altitude than surrounding is
   (A) Ridge (B) Plateau
   (C) Local maxima (D) Global maxima

9. Given a fact and an axiom/ premise, reasoning falls under
   (A) Induction (B) Deduction
   (C) Abduction (D) Reduction

10. For a query like 'where is my mobile'? to be resolved which approach is appropriate
   (A) Forward chaining (B) Forward checking
   (C) Modus ponens (D) Backward chaining

11. _____ is the process of finding the substitutions that make different logic sentences look identical
   (A) Simplication (B) Unification
   (C) Lifting (D) Reasoning

12. _____ is used to indicate that block B is on X
   (A) ON [B,X] (B) ON [X,B]
   (C) CLEAR [X] (D) MOVE [B,X]

13. The alternate name of forward state-space search is
   (A) Regression (B) Progression planning
   (C) Partial order planning (D) Linearization

14. Regression planning is also referred to as
   (A) Backward state-space search (B) Progression search
   (C) Least commitment strategy (D) Consistent planning

15. The condition that supports a 'Mutex' relation between two action is
   (A) Inference (B) Consistency
   (C) Persistence (D) Competing needs

16. The most widely used way of representing domain knowledge in expert systems is as a
   (A) Set of probabilities (B) Set of representations
   (C) Set of production rules (D) Set of mechanisms

17. _____ is a partially specified state, represented as a conjunction of positive ground literals
   (A) Actions (B) States
   (C) Goal (D) schema

18. Fuzzy logic is a form of
   (A) Two-valued logic (B) Crisp set logic
   (C) Many-valued logic (D) Binary set logic

19. RI has
   (A) Numeric measure of certainty (B) No numeric measure of certainty
   (C) English statements (D) Hypothesis

20. SALT builds a
   (A) Medical diagnosis systems (B) Chip design
   (C) Dependency networks (D) Design for car engines

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

21. List all the components to formulate a well-defined problem.

22. Brief the concept of data acquisition and learning in Artificial Intelligence with examples.

23. Define the terms local maximum ridges and plateau with diagrams.

24. Consider the following English sentence, deduce the logical fact and deductive representation for the same 'spot is a dog'.

25. Define a sentence and explain BNF grammar for that sentence in proposition logic.

26. Write the applications of natural language processing.

27. What is meta-dendral expect system?

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

28. a.i. State an algorithm for problem reduction with a suitable example.

ii. How do question and answering problem solved using AI techniques? Assume relevant inputs for the same.

(OR)

b. Explain missionaries and cannibal problem in detail with appropriate production rules of each movement of the characters involved.

29. a. Expand and solve the 8 puzzle problem given below using simple heuristic search.

1	2	3
7	8	4
6		5

Initial state

1	2	3
8		4
7	6	5

Goal state

(OR)

b.i. Describe the working of simulated annealing procedure in detail.

ii. Write down the algorithm of hill climbing.

30. a. Discuss briefly about the syntax and semantics of propositional logic.

(OR)

b.i. Explain the use of first order logic to represent knowledge using rules.

ii. Brief forward and backward chaining with example.

31. a. Explain in detail about planning with state space search.

(OR)