ST.ANN'S COLLEGE OF ENGINEERING & TECHNOLOGY::CHIRALA
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
ARTIFICIAL INTELLIGENCE
FREQUENTLY ASKED QUESTIONS (FAQs)

Year/sem: III B.Tech II sem **Branch**: CSE
Regulation: R-16

UNIT-1:-

1. Explain about Tic-Tac-Toe game problem by assuming one player is X the other one can be either human or a computer by taking 3X3 grid space.
2. Explain in detail the applications of Artificial Intelligence.
3. Discuss categorization of intelligent systems.
4. Write about some of the cross domains of Artificial intelligence
5. Explain the current trends in AI.
6. Briefly Explain the history of Artificial Intelligence
7. Distinguish between simple planning agent and problem solving agent?
8. Define Artificial Intelligence. Explain the techniques of A.I. Also describe the characteristics of Artificial Intelligence?
9. What do you mean by an AI technique? How will you know that your AI system readily works?
10. Describe about development of AI languages?
11. Illustrate in detail about foundations of AI.

UNIT-2:-

1. Explain A* algorithm with an example. What are the limitations of A* algorithm?
2. Solve the water-jug problem by writing the production rules. Draw the state space representation of Water – Jug problem?
3. Draw a state space representation of Towers of Hanoi problem?
4. Search in game playing programs always proceeds forward from current state to goal state. Why? Explain.
5. Explain the problem characteristics.
6. Solve the following crypt arithmetic puzzle. Write constraint equations and find one solution using DFS by showing the steps involved in finding the solution.

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  B A S E
+ B A L L
  ----------
 G A M E S
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7. Explain about hill climbing heuristic search technique
8. Discuss in detail about alpha-beta pruning
9. Describe different control strategies used in problem solving?
10. Explain forward state space search with an example.
11. Define Heuristic search? What are the advantages of Heuristic search?

12. Describe the minimax algorithm with an example?
13. A problem-solving search can precede either forward or backward. Discuss the Factors that determine the choice of direction for a particular problem?
14. Describe with necessary diagrams, a suitable state space representation for 8 puzzle problem and explain how the problem can be solved by state space search. Show how heuristic can improve the efficiency of search?
15. Explain in detail about Nim game problem?

UNIT-3:-

1. Write in detail about Natural Deduction systems
2. Discuss about axiomatic systems?
3. Explain about Semantic tableau system in propositional logic
4. Explain the inference rules for quantifiers.
5. Explain the syntax and semantics of propositional logic.
6. Explain the forward-chaining algorithm for propositional logic.
7. How can resolution be used to show that a sentence is valid or Unsatisfiable?
8. Compare inference in propositional logic with inference in first order logic
9. Decide whether each of following sentence is valid, unsatisfibale or neither.
10. Verify your decisions using truth tables or equivalence rules
    a) Big V Dumb V (Big => Dumb)
    b) (Big Λ Dumb) V ¬Dumb
    c) (A Λ B) V (B Λ C)
11. What is Resolution? Suggest an algorithm to resolve a set of sentences given in prepositional logic
12. What is predicate logic? Explain the predicate logic representation with reference to suitable example?
13. Differentiate between Forward Vs Backward reasoning

UNIT-4:-

1. Define Knowledge? Write in detail about Approaches to knowledge representation.
2. Convert the following statements to conceptual Dependencies
   - ✓ John gave a book to Mary
   - ✓ Mike ate custard with spoon
   - ✓ While going school john saw a snake
3. Explain in brief about the issues in representation of Knowledge?
4. Draw the semantic network representing the following knowledge

   "*Every human, animal and birds are living things who can breathe and eat. All birds can fly. Every man and woman are human who have two legs. A cat has fur and is an animal. All animals have skin and can move. A giraffe is an animal and has long legs and is tall. A parrot is a bird and is green in colour. John is a man."*
5. Explain about Extended Semantic Networks for KR
6. Develop a complete frame based system for hospital application.
7. Define conceptual dependency? Briefly explain about rules for Conceptual dependencies
8. What is meant by script? Write a script for going to theatre to see a play.
9. Illustrate the Forward Reasoning Inference Method by using some example.
10. Describe the concept of case grammars

UNIT-5:-

1. With a neat diagram, explain the justification based truth maintenance system?
2. Explain the process of Knowledge acquisition and validation for expert systems?
3. List out and explain the characteristics features of expert systems?
4. Define Expert System? Explain in brief about applications of Expert System?
5. Differentiate between Expert and Traditional Systems?
6. Explain in brief rule based expert systems?
7. What is Inference Engine? Describe Backward and forward chaining mechanism used by an inference engine?
8. Explain the phases in building expert system.
9. Briefly explain the architecture of expert systems.
10. Explain about MYCIN expert system in detail.
11. Explain the issues in blackboard systems for problem solving

UNIT-6:-

1. Define Fuzzy set? Explain in brief about Fuzzy set operations with examples?
2. Explain in brief fuzzy propositions?
3. Define Fuzzy set? Explain in brief about Inference rules for fuzzy Propositions?
4. Explain in brief Membership functions in Fuzzy systems?
5. Discuss Multivalued logic in detail.
6. Explain Fuzzy expert system with example?
7. Explain the following

   Alpha cut.

   Linguistic variables and Hedges.
8. Explain about certainty factor theory?
9. Discuss in detail about Fuzzy logic?
10. List out and explain the Basic reshaping operations.
11. Explain in detail about Probability theory for measuring uncertainty?
12. Describe in detail about Dempster- Shafir theory & Bayesian belief Networks.