



**SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR**  
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**QUESTION BANK**

**Subject with Code : ARTIFICIAL INTELLIGENCE (16MC838)**

**Course & Branch: MCA**

**Year & Sem: III-MCA & I-Sem**

**Regulation: R16**

**UNIT – I**

- 1) What are the four basic types of agent program in any intelligent system? Explain how did you convert them into learning agents? (12M)
- 2) Explain the following uninformed search strategies with examples.
  - (a) Breadth First Search. (3M)
  - (b) Uniform Cost Search (3M)
  - (c) Depth First Search (3M)
  - (d) Depth Limited Search (3M)
3. What is A\* search? Explain various stages of A\* search with an example. (12M)
- 4) Explain in detail with examples
  - (i) Recursive Best First Search (RBFS) (6M)
  - (ii) Heuristic Functions (6M)
- 5) Explain the following local search strategies with examples.
  - (i) Hill climbing (3M)
  - (ii) Genetic Algorithms (3M)
  - (iii) Simulated annealing (3M)
  - (iv) Local beam search (3M)
- 6) Define constraint satisfaction problem (CSP). How CSP is formulated as a search problem? Explain with an example. (12M)
7. Explain informed search strategies with an example (6M)
8. Explain the process of simulated annealing with example (6M)
9. Write short notes on Heuristic Functions. (6M)
10. Explain local Beam (6M)

**UNIT –II**

- 1) Explain with examples
- (i) Constraint graph (3M) (ii) Cryptarithmic problem (3M) (iii) Adversarial search problem (3M) (iv) Game (3M)
- 2) Explain with algorithm and example:
- i. Minimax algorithm (6M)
- ii. Alpha-Beta Pruning (6M)
3. Explain in detail about forward & backward chaining algorithm with example (12M)
4. Explain in detail about logical agents with example. (12M)
5. Explain in detail about Resolution & Resolution inference Rule with example (12M).
- 6) (i) Define the syntactic elements of first-Order logic (6M) (ii) Illustrate the use of first-order logic to represent knowledge . (6M)
- 7) Explain the steps involved in the knowledge Engineering process. Give an example. (12M)
- 8) Explain with an example
- (a) Forward chaining (6M) (b) Backward chaining (6M)
9. Discuss about Evaluation functions. (6M)
10. How categories are useful in knowledge representation. (12M)

**UNIT –III**

- 2) Define and explain
- (i) Supervised learning (4M) (ii) Unsupervised learning (4M) (iii) Reinforcement learning (4M)
- 3) How hypotheses formed by pure inductive inference or induction? Explain with examples. (12M)
- 4) (a) What is a decision tree? (4M)
- b) Explain the process of inducing decision trees from examples. (6M)
- c) Write the decision tree learning algorithm (6M)
- 5) How the performance of a learning algorithm is assessed? Draw a learning curve for the decision tree algorithm (12M)
- 6) Explain with an example
- (a) Ensemble learning (3M)
- (b) Cumulative learning process (3M)
- (c) Relevant based learning (RBL) (3M)
- (d) Inductive logic programming (4M)
- 7) What is explanation based learning? Explain in detail with an example. (12M)

8. Explain language of planning problems (6M)
9. Briefly discuss about planning with state-space search. (6M)
- 10) What is reinforcement learning? Explain (a) Passive reinforcement learning (b) Active reinforcement learning (12M)

#### UNIT –IV

1. Explain applications and domains in Expert systems (12M)
2. Discuss production systems. (12M)
3. Define expert systems. Explain the architecture of expert systems in details with a neat Diagram with an example. (12M)
4. Explain about Artificial Neural Systems. (12M)
5. Explain details about expert system shells and tools (12M)
6. Write short notes on procedural and non procedural paradigms. (12M)
7. Discuss about artificial neural systems. (6M)
8. Explain connectionist expert systems and inductive learning. (12M)
9. Write short notes on Expert systems (6M)
10. Explain Advantages of Expert systems. (6M)

#### UNIT –V

1. Design an expert system for travel recommendation and discuss its roles. (6M)
2. Explain the expert System life Cycle. (6M)
3. Discuss detailed life cycle model. (6M)
4. Write short notes on Decision trees, backward chaining. (12M)
5. Explain selecting the appropriate problem. (6M)
6. Explain stages in the development of an expert systems (12M)
7. Discuss Expert systems design examples. (6M)
8. Design of expert systems. (6M)
9. Write short notes on Expert systems (6M)
10. Explain in detail about Knowledge Acquisition and Meta-Knowledge in expert system. (12M)