

MCA-52: Artificial Intelligence

Unit : 1

[25%]

Introduction: Introduction of artificial intelligence, Various task Domain of AI, AI Problems.

Problem solving: Defining the problem as state space search, water-jug problem, Production system, Problem characteristics, Production system characteristics.

Heuristic Search techniques: Generate and test, Hill climbing, Best first search, A* algorithm, Problem reduction, AO* algorithm, Constraint Satisfaction, Means - End Analysis.

Unit : 2

[25%]

Expert system: Definition, Role of knowledge in expert system, Architecture of expert system, Expert system development life cycle: Problem selection, Prototype construction, Formalization, Implementation, Evaluation

Knowledge acquisition: Knowledge engineer, Cognitive behavior, Acquisition techniques,

Knowledge representation: Types of Knowledge, Level of representation, Predicate logic, Inference Engine and inference rule, Semantic net, Frame, Scripts.

Unit : 3

[25%]

Neural Networks : Introduction, HopField Networks, Perceptrons, Back propagation networks.

Perception And Action: Speech recognition, Vision, Action, Robot Architecture

Game Playing: The Minimax Search Procedure, Alpha - Beta Cutoffs.

Natural Language Processing: Introduction, Phases of Natural Language Processing, Syntactic Processing, Semantic Analysis, Augmented Transition Networks.

Unit : 4

[25%]

Programming in Logic (PROLOG): Introduction, Prolog variables, Using rules, Input and Output predicates, Fail and cut predicates, Recursion, Arithmetic operation, Compound object, Dynamic database, Lists, String, File operations.

Text Book/Reference Books:

1. Principles of Artificial Intelligence and Expert System Development.
Author : David W. Rolston, Pub: McGraw Hill Book Company.
2. Artificial Intelligence
Author : Elaine rich, Kevin Knight, Pub: Tata McGraw Hill
3. Introduction to Turbo Prolog.
Author : Carl Townsend, Pub: BPB

Question Paper Scheme:

Section – I

- Q.1 Objective Type Unit I & II (11)Marks
Q.2 Unit-I OR Q.2 Unit-I (12)Marks
Q.3 Unit-II OR Q.3 Unit-II (12)Marks

Section – II

- Q.4 Objective Type Unit III & IV (11)Marks
Q.5 Unit-III OR Q.5 Unit-III (12)Marks
Q.6 Unit-IV (12)Marks