Unit - 1

(i) Introduction to AI.
(ii) Turing test?
(iii) AI and related fields.
(iv) Goals and challenges of AI
(v) Application of AI.
(vi) Four approaches to AI.

Q.) write a brief history of AI. Explain turing test with its significance in AI.

Unit-2 (Agents & problem solving.)

(i) Introduction to agent and agent environment.
(ii) Explain Agent architecture.
(iii) Types and example of agent.

(iv) what is PEAS description? Discuss PEAS description for automated footballer agents.

(v) Defining problem as State space search.
(vi) Explain different types of problem.

(vii) Explain problem formulation

problem solving agent
learning agent

(viii) constraint satisfaction problem
(ix) cryptarithmetic problem.
(x) Game playing, production-rule system
↳ Case based reasoning ?

Unit-3 (Search strategies)

(i) searching Algo and its advantages

(ii) Introduction to uninformed search.

↳ Breadth-first search.
↳ Depth-first search
↳ Depth-limited search
↳ Iterative-deepening search
↳ Uniform-cost search
↳ Bidirectional search

(iii) Compare uninformed search tech (Difference between with analysis)

(iv) Introduction to Informed search
↳ Best-first search
↳ Greedy search

↳ A* search
↳ Hill climbing
(Difference with analysis)

(V) Compare Informed search tech.

(VII) Adversarial search & Defination

→ Games and perfect games.
↳ min-max problem,
Alpha-beta purning with
suitable example.

Unit - 4 (Knowledge representation, Inference and Reasoning)

(I) Define knowledge and its types.
(II) Define logic and formal-logic connectives.
(IV) Define :
→ propositional logic (Truth tables)
(IV) Explain well-formed formula.
(V) Explain tautology with example ?
(VI) Difference between propositional and predicate logic.

(VII) FOPL (first order)

(VIII) Inference Rules. Explain

↳ Resolution in FOPL.

ix) Forward and backward reasoning

(x) semantic Nets and frames.

(xi) Reasoning and uncertainty.

(xii) monotonicity

x iii) statistical Reasoning.

↳ Bayesian network

↳ case Based reasoning.

Unit-5 (Expert system) → Define

(1) Architecture of an expert system. Explain the component.
(2) characteristics of an expert system.

(3) categories of knowledge?
↳ knowledge acgusitions.
↳ knowledge elicitation techniques.

(4) process of development of an

expert system

unit-6 (machine learning) → Define

(i) Explain winston's learning concept
(ii) Explain Rote learning.
↳ learning by analogy
↳ Explanation-based learning
↳ Inductive learning

(iii) Describe / compare / differences between supervised & unsupervised learning.

(iv) Explain reinforcement learning?

(v) Elaborate Genetic algorithm.
what is learning?

unit-7 (Neural Networks)

(i) concepts of neural network?
(ii) Explain network structure?

(iii) Define, perceptron.
↳ multilevel perceptron

(iv) Explain Adaline & madaline.

(v) Back propagation with algo.

(vi) Elaborate : Hopfield network.
& Boltzmann Machines.
working of ↑

(vii) Explain Deep learning.?

(viii) Applications of Neural network.

unit-8 (Natural language processing)

(i) Explain level of analysis.

(ii) Define NLP. Explain different steps of NLP.

(iii) Elaborate : parsing and parse tree generation.

→ morphological.
→ syntactic
→ semantic
→ Discourse integration.
→ pragmatic analysis.