Subject: Artificial Intelligence and Robotics

Unit 1: Introduction

1 What are the typical Applications of Artificial Intelligence.

2 Define Artificial Intelligence.

3 What is State Space Search : Depth Bounded DFS?

4 What is Depth First Iterative Deepening?

5 Explain Best First Search

6 Explain Hill Climbing algorithm

7 Explain Variable Neighborhood Descent

8 Explain A\* algorithm

9 Explain Iterative Deepening A\*

10 Explain Recursive Best First Search

11 Explain Pruning the CLOSED and OPEN Lists

12 Explain below serach algorithm in brief:

a. Beam Search

b. Tabu Search

c. Heuristic Search

d. Optimal Search

13 What are intelligent agents? Explain the architecture of typical agent and

give at least two examples where agents are used.

14 What are attributes of agent design(hint:PEAS)

15 Which are the types of Agent? Explain any 2 in detail.

16 What mean by AI? Explain problem solving with AI?

17 Best First search uses both an OPEN list and a CLOSED list. Describe

the purpose of each for the Best-First algorithm. Explain with suitable

example.

18 Define search problem. Solve 8 queens as a state-space-search problem.

Unit 2: Problem Decomposition and Planning

1 Explain Goal Trees along with neat diagram

2 Explain Rule Based Systems in detail

3 What is STRIPS?

4 Explain Forward and Backward State Space Planning

5 What is Goal Stack Planning?

6 Explain Plan Space Planning

7 Explain A Unified Framework For Planning

8 Explain N-Queens problem with neat diagrams

9 Describe the essence of a constraint satisfaction problem. What are some

of the major applications of constraint satisfaction search?

10 What is Scene Labeling?

11 What is Higher order and Directional Consistencies?

12 Explain Backtracking and Look ahead Strategies

13 What is Hill climbing? Explain in detail with the problem of Local

Maxima, Plateu and ridge

Unit 3: Logic and Reasoning

1 Explain Knowledge Based Reasoning and Agents

2 What are Facets of Knowledge?

3 Explain Logic and Inferences

4 What is Propositional and First Order Logic?

5 Explain Resolution in Propositional and First Order Logic

6 What is Deductive Retrieval?

7 Explain Backward Chaining

8 What is Second order Logic?

9 Explain Knowledge Representation : Conceptual Dependency

10 What is Frames?

11 What are Semantic nets?

12 What are the applications of Knowledge Based systems?

13 Describe the PEAS for Wumpus world problem

14 Describe representation of knowledge using rules.

15 What is predicate logic? Describe the advantages of predicate logic over

propositional logic.

16 Define Forward Chaining, Backward Chaining.

17 What is Algorithms for Planning as State-Space Search?

18 Write a note on goal stack planning

19 What is blocks world problem? Give suitable example.

20 Represent a suitable problem using STRIPS

21 What is a Logic? How it is represented in prolog?

22 Explain regression planner and progression planner.