Artificial Intelligence
BCS515B
Question bank
IAT - 1
Module 1,2,3.5

Module 1

1. Discuss the four categories used to define artificial intelligence, organized into four categories.
2. Discuss the Turing test approach to test whether a computer has artificial intelligence
3. Briefly explain the disciplines that contributed ideas, viewpoints, and techniques to AI.
4. Discuss any five applications of AI.
5. How agent and environment communicate, explain with neat diagram
6. Write a PEAS description of the task environment for an automated taxi.
7. Explain various types of environment
8. Explain structure of an agent
9. Explain the four types of agent program with a neat diagram.

Module 2

10. Discuss the five components of a well-defined problem.
11. Explain what is problem solving agent
12. What are the possible states of a vacuum world problem that has two rooms. Draw the state space for the problem.
13. Write the standard formulation of an 8-puzzle problem. Problem formulation should contain all the components of a well-defined problem.
14. Write the standard formulation of an 8-queen problem. Problem formulation should contain all the components of a well-defined problem.
15. Write the standard formulation of an Airline ticket booking system. Problem formulation should contain all the components of a well-defined problem.
16. Explain the following terms in the context of searching for solutions Search tree, Frontier (also known as open list), Loopy path
17. Using Breadth First Search (BFS), find the solution for a tourist to reach from city A to city Z. The road network is shown in the figure below where nodes are cities and edges are roads. Specify the path from A to Z discovered by BFS.

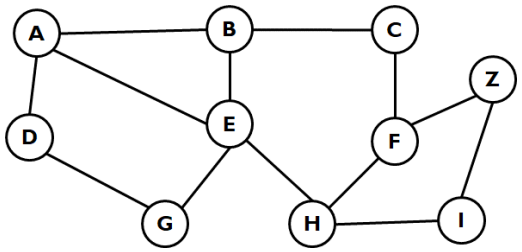


Figure 1

18. Using Depth First Search (DFS), find the solution for a tourist to reach from city A to city Z. The road network is shown in figure 1 for problem 10 above where nodes are cities and edges are roads. Specify the path from A to Z discovered by DFS.

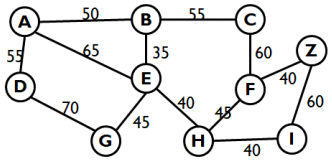
19. Explain tree search and graph search algorithm.

20. Explain the infrastructure of search algorithms and how to measure problem solving performance.

21. Explain uniform cost search and depth limited search with example.

Module 3

1. What is the difference between uninformed searches and heuristic searches?
2. Apply the greedy best first search on the tourist problem shown in Figure 2 below. The goal is to reach city Z from city A. Cost of traveling from one city to another is shown as edge cost in the graph. Use the straight-line distances shown in Figure 2 for heuristic function values.



Select straight line distance shown in the table below as heuristic function value

Location	Straight line distance to Z	Location	Straight line distance to Z
A	100	F	30
B	70	G	110
C	30	H	70
D	120	I	50
E	90		

Figure 2

3. Apply A* algorithm on the tourist problem shown in Figure 2 above. The goal is to reach city Z from city A. Cost of traveling from one city to another is shown as edge cost in the graph. Use the straight-line distances shown in Figure 2 for heuristic function values.