Unit 1

Question Bank

1) Define AI. Give typical applications of A.I in detail.
2) Write a brief note on foundation and history of AI?
3) List and explain the potential risks and benefits of AI.
4) Detail a case study on state of the art AI for the following applications
    a. Robotics b. Agriculture c. Big data d. Medicine e. Ecommerce
5) What is an Intelligent agent and describe structure of an agent? List and explain classes/types of agents.
6) What is the concept of Rationality?
7) What is an agent and its environment in AI? List the different types of environments with example.
8) Define PEAS with a example.
9) For each of the following activities, identify a PEAS description of the task environment and build in terms of PEAS
    i. Playing soccer
    ii. Exploring subsurface oceans of Titan
    iii. Shopping for used AI books on the Internet
    iv. Playing a tennis match
    v. Performing a high jump.
10) Describe Learning agent and Utility based agent with an example.
11) List advantages and limitations of Artificial Intelligence.
12) Comment on the state of art AI with an example.

Textbook/Reference book:

Stuart Russell and Peter Norvig, “Artifcial Intelligence: A Modern Approach”, Third edition, Pearson, 2003, ISBN : 10: 0136042597

Unit 2

Question Bank

1) Explain in detail about problem solving agent with an example.
2) Write a detailed not on Evaluation of Search strategy.
3) Define state space search. Explain the following search problems:
    a) Water jug problem
    b) Missionaries and cannibals
    c) Toy problem
4) Define Heuristics. Define a heuristic for 8 Sliding Tile puzzle problem.
5) Explain A* algorithm in detail with example. (8 puzzle problem or Hill climbing problem)
6) List the differences between Informed and Uninformed (blind) search techniques.
7) Compare Depth First and Best First Search methods.
8) Compare Breadth First Search and Depth First Search.
9) Explain Depth first search and the concept of Depth First Iterative Deepening.
10) Explain with an example Best first search and Recursive best first search.
11) Explain Uniform –cost search and Bidirectional search techniques with an example.
12) Detail the concept of Iterative deepening A* algorithm with an example.
13) Write a note on learning heuristics from experience.
14) Explain admissible heuristic function for A* search.
15) Explain Hill Climbing algorithm. Explain plateau, ridge, local maxima and global maxima.
16) Explain Steepest ascent hill climbing in detail.
17) Write a note on i)Beam search ii)Tabu search.
18) Comment on Simulated annealing technique and how it is used to solve optimization problems..

Textbook/Reference book:

1. Stuart Russell and Peter Norvig, “Artifcial Intelligence: A Modern Approach”, Third edition, Pearson, 2003, ISBN :10: 0136042597

2. Deepak Khemani, “A First Course in Artificial Intelligence”, McGraw Hill Education(India), 2013, ISBN : 978-1-25-902998-1

3. Elaine Rich, Kevin Knight and Nair, “Artificial Intelligence”, TMH,ISBN-978-0-07- 008770-5