Faculty of Engineering and Technology

University of Lucknow

ARTIFICIAL INTELLIGENCE

MCA-2ND YEAR

1. Define Artificial Intelligence. List the fields that form the basis for AI.
2. Explain intelligent agent and types of intelligent agents.
3. Describe the categories under which AI is classified with examples.
4. Discuss natural language processing.
5. What are Expert Systems? Briefly explain the knowledge acquisition process.
6. List the characteristic features of an expert system. Mention some of the key applications of expert system.
7. Explain various component of expert system.
8. What is a Knowledge Based System? Describe the components of a KBS.
9. What is a Production System?
10. Define constraint satisfaction problem (CSP). Solve the following problem: SEND + MORE = MONEY
11. Define state-space search technique.
12. List the steps in performing a state-space search.
13. What is heuristic search?
14. Define Heuristic Functions.

15. Differentiate Informed & Uninformed search. Give examples.

16. Explain various uninformed search strategies with examples.

17. Explain various informed search strategies with examples.

18. What is Greedy Best First Search? Explain with an example the different stages of Greedy Best First search.

19. What is A* search? Explain various stages of A* search with an example.

20. Explain Hill climbing with its difficulties.

21. Define various properties for good knowledge representation.

22. What are various knowledge representation techniques? Explain all with suitable example.

23. Explain various approaches for knowledge representation.

24. Differentiate between prepositional & predicate logic.

25. What is clausal form? How is it useful?

26. List some of the rules of inference.

27. What do you mean by resolution? Explain the process of resolution with suitable example.

28. Define unification.

29. What are semantic nets?

30. What are frames? How do they differ from semantic nets?

31. Mention the frame manipulation primitives.

32. Define forward and backward chaining. Differentiate the same.

33. What is means-end analysis?

34. Explain probabilistic reasoning. What is the use of certainty factor?

35. Describe Bayes theorem.

36. Define Non monotonic reasoning.

37. What are Truth Maintenance Systems? Draw its block diagram.

38. What are Bayesian networks? Give an example.

39. What is fuzzy logic? What is its use?

40. Explain the process of fuzzification and defuzzification.

41. Differentiate between crisp sets and fuzzy sets.

42. Explain membership function in detail.

43. Define neural network. Also explain the working of neural network.

44. What is activation function? Explain various types of activation functions.

45. What is genetic algorithm?

46. What are the types of neural network architecture? Explain it in detail.

47. How Knowledge is represented?

48. What is propositional logic?

49. What are the elements of propositional logic?

50. What is inference?

51. What are the components of agents?

52. Define and explain (i) Supervised learning (ii) Unsupervised learning (iii) Reinforcement learning

53. How hypotheses formed by pure inductive inference or induction? Explain with examples.

54. What is a decision tree?

55. Explain the process of inducing decision trees from examples.

56. Write the decision tree learning algorithm.

57. What is learning? What are its types?