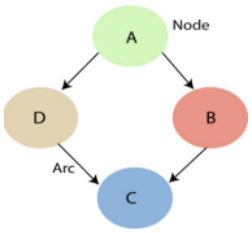
AI assignment3:

1. What is Bayesian Belief Network? Find the joint probability distribution of the DAG, p(A,B,C,D).



2. What is Inference in FOL? What is Resolution?

3. State and explain the components of a learning system in AI.

4. State differences between Supervised and Unsupervised Learning.

5. What is perceptron? Explain perceptron with diagram.

6. Compare Artificial Neuron with Biological Neuron with diagram.

7. Apply A* Search on the following 8-puzzle problem.

8	1	3
7	2	4
	6	5

Initial State

1	2	3
8		4
7	6	5

Goal State

8. If **SEND+MORE=MONEY** then replace each letter by distinct digit so that the resulting sum is correct

$$\begin{array}{r} SEND \\ +\ MORE \\ \hline MONEY \end{array}$$

9. List and explain the connectives of propositional logic.

10. State the Limitation of Propositional Logic. What is First Order Logic?

11. What is well-form-formula (wff)? Convert the following proposition into wff:
All birds fly.
Every man respects his parent.
Some boys play cricket.
Not all students like both Mathematics and Science.

12. What is knowledge? Explain various types of knowledge.

14. State differentiates forward and backward chaining.

15. What is semantic network? Draw the semantic network for the following proposition:
Tom is a cat. Tom caught bird. Tom is owned by Babuji. Tom is ginger in color. Cats like fish. Cat sat on the mat. A cat is a mammal. A bird is an animal. All mammals are animals. Mammal has fur.

16. Write short notes on Bidirectional Search

17. Write short notes on Depth-First Iterative Deepening (DFID) Search

18. Write short notes on Fuzzy Set vs. Crisp Set

19. Write short notes on Joint Probability Distribution

20. Write short notes on Production system

21. Write short notes on Bayes' theorem

22. Write short notes on Supervised Learning

AI assignment3:

23. Consider that 1% of women over the age of 40 have breast cancer. In addition, consider that 90% of women who have breast cancer will test positive for breast cancer in a mammogram. It is found that 8% percent of women that do NOT have cancer will also test positive. Now, using Bayes' theorem find, what is the probability that a woman has cancer if she tests positive?

24. What is Constraint Satisfaction Problems? Explain various components of it.

25. Represents the given map into constraint graph.

26. Color the map using the concept of CSP formulation.

27. List and explain the connectives of propositional logic.

28. State the Limitation of Propositional Logic. What is First Order Logic?

29. What is knowledge? Explain various types of knowledge.

30. State differentiates forward and backward chaining.

31. State differentiates between Deductive and Inductive Reasoning.