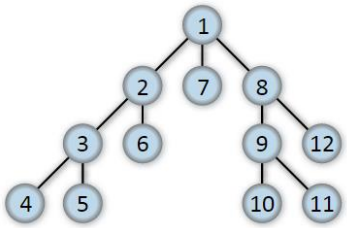
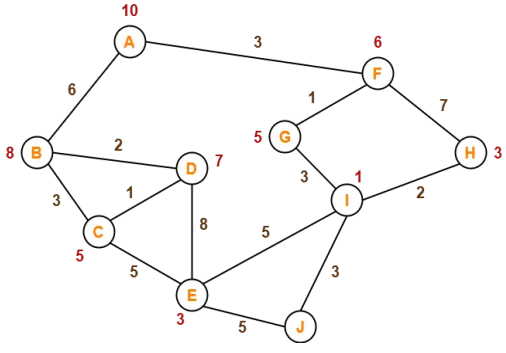
IILM University
Question Bank
Introduction to AIML (UCS1002)

1) Define Artificial Intelligence (AI). What are the two main categories of AI? Explain with examples.
2) Explain the role of philosophy, Economics, Neuroscience and Psychology in the development of AI. Discuss how the philosophy of mind and ethics influence AI research.
3) Explain the importance of linguistics in AI, especially in the field of Natural Language Processing (NLP). What challenges do AI systems face in understanding human language?
4) Discuss the risks and benefits of AI.
5) Define Artificial Intelligence and explain its key goals. Difference between AI and ML.
6) Define an intelligent agent. How does an agent interact with its environment, and what are the types of intelligent agent?
7) Write short note : State, state space, search tree, search node, goal, action, transition model, and branching factor.
8) What is the process of problem formulation in AI? How do you convert a real-world problem into a problem that can be solved by an intelligent agent?
9) Explain uninformed search algorithms such as Breadth-First Search (BFS) and Depth-First Search (DFS). Find the route to reach the Goal State shown in the below Diagram using DFS algorithm.(Star Node-1 Goal Node-10) .



10) What are informed search algorithms? Explain how the A* search algorithm works, and discuss the role of heuristics in improving search efficiency. Using A* find the route from C to H node using f(n)=g(n)+h(n).



11) Explain the concept of knowledge representation in AI. How does logical representation help in encoding knowledge for AI systems?
12) What is propositional logic? Define its 5 Logical Connectives(operators). Provide an example of a propositional logic expression and demonstrate how it can be evaluated.
13) Explain Quantifiers used in Propositional logic.
14) Consider the following statements and convert them to FOL and solve them using resolution:
    - All hounds howl at night.
    - Anyone who has any cats will not have any mice.
    - Light sleepers do not have anything which howls at night.
    - John has either a cat or a hound.
    - (Conclusion) If John is a light sleeper, then John does not have any mice.

15) Draw the semantic network that represents the data given below in the form of nodes and arcs:
    - Mammals have fur.
    - All mammals are animals.
    - A bird is an animal.
    - A cat is a mammal.
    - Tom is a cat.
    - Tom is owned by John.
    - Tom is ginger in colour.

16) What is the history of AI? Explain the concept of "AI winters," analysing their causes and effects on the field's development.

17) How does AI enhance intelligent automation in industries? Explain how AI help in Robot Navigation. List the algorithms used in Robots for Navigation.
18) Define Machine Learning. How does it differ from traditional programming?
19) What is the difference between regression and classification problems in machine learning? Provide an example for each.
20) Explain the different types of data used in machine learning (e.g., numerical, categorical, text, etc.) and how they impact model selection.
21) Describe the main differences between supervised learning, semi-supervised and unsupervised learning. Provide one real-world example for each type.
22) What is Linear Regression? Explain its regression analysis.
23) Find Linear regression equation for the following set of data, where x is independent variable and y is the dependent variable.

x	3	2	7	5
y	4	5	2	1