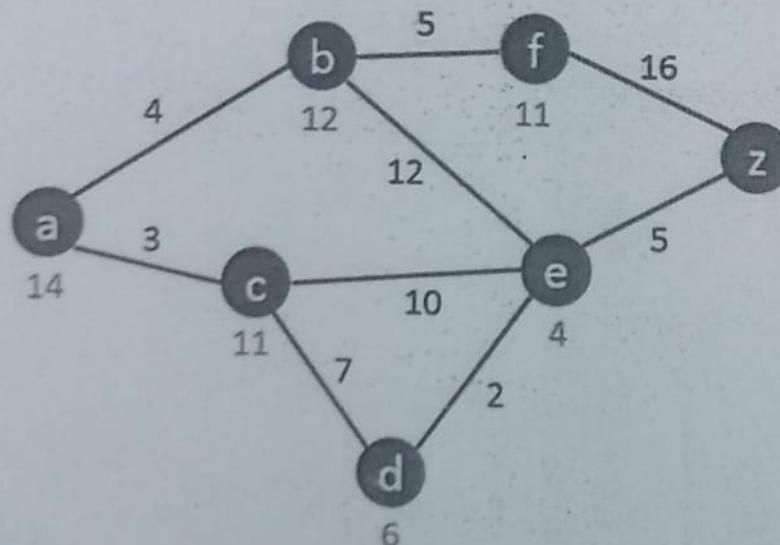## MIDTERM EXAMINATIONS – March 2024

Programme : B.Tech.
Course Title : Fundamentals in AI & ML
Max. Marks : 50
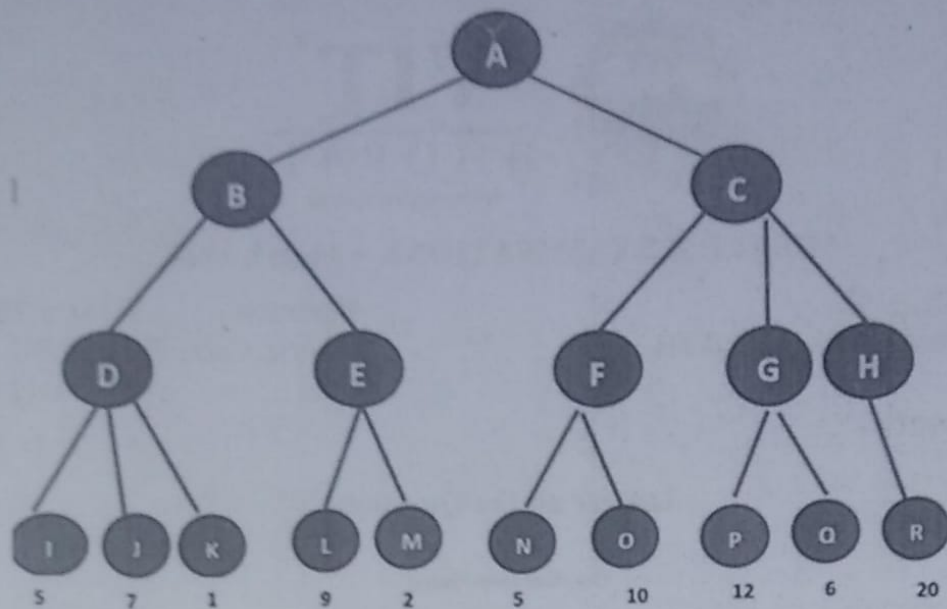Time : 1 ½ hours

Semester : **Winter 2023-24**
Course Code : **CSA2001**
Slot : **D11+D12+D13**

Answer all the Questions

Q.No.	Question Description	Marks

1. What is the relationship between an agent and its environment? Describe the task environment and PEAS of a medical diagnosis system.

10

2. Outline the components of a learning agent with a sketch. How can a taxi-driving agent justify this category?

10

3. What are admissible heuristics? Apply A* to find the best path from a to z in the following graph:

10

4. Use the Minimax algorithm to determine the utility associated with the root node. Also, indicate which nodes can be pruned using alpha-beta pruning:

10

5. Represent the following in First-Order clausal form:
   i. Any student who doesn't study doesn't pass.
   ii. Any student who doesn't pass doesn't play.
   iii. No professor fails all the students.
   iv. Every student hates some student.
   v. There exists a dedicated student.

10

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