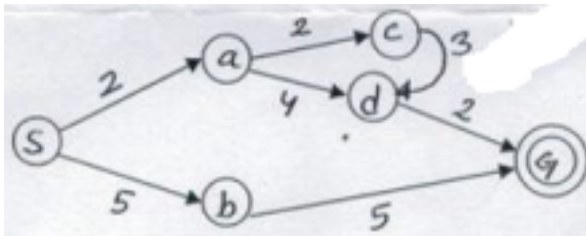


Bachelor Level / fourth-semester / Science Full marks: 60 **Computer Science and Information Technology(CSC261)** Pass marks: 24 (Artificial Intelligence) Time: 3 hours Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

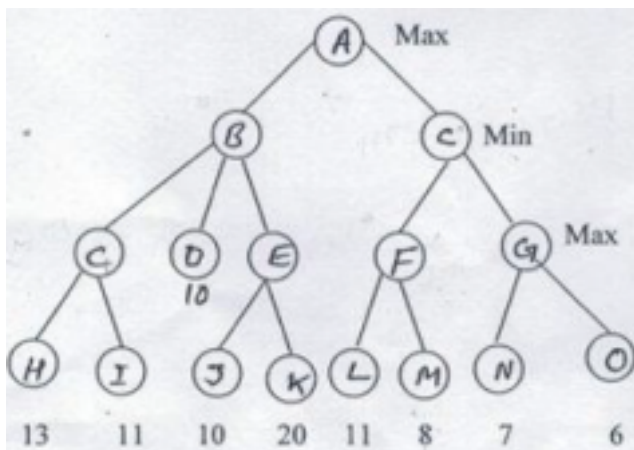
Attempt all questions. . (10x6=60)

1. How the dimensions like thinking humanly and thinking rationally are used to evaluate intelligence behavior of a machine.
2. What are rational agents? How does episodic task environment differ from sequential task environment? Support your answer with suitable examples.
3. In problem solving, why must problem formulation follow goal formulation? How state space representation can be used to solve a problem? Support your answer with an example.
4. How does uniform cost search work? Given the following state-space, use a uniform cost search algorithm to find the goal. Show each of the iterations.



Here S is start state and G is goal state.

5. What is the need of alpha beta pruning in game search? Given the following search space with utility, perform minimax search and identify alpha-beta cutoff if any. Play from the perspective of max player first.



6. Define knowledge representation system. How is knowledge represented using semantic networks? Illustrate with an example.
7. How concepts of most specific consistent hypothesis and most general consistent hypothesis are used in learning through examples. How is the generalization specialization tree maintained for these concepts?
8. What do you mean by machine vision? Discuss the components of a machine vision system.
9. What do you mean by marginalization in probability distribution? Consider in Nepal, 51% of adults are males and the rest are females. Consider one adult is randomly selected for a survey of drinking alcohol. It is found that 15% of males drink alcohol whereas 2% of females drink alcohol. Now find the probability that the selected adult is a male.
10. Convert following sentences to FOPL.

If every helper is busy then there is a job in the

queue. A job is in queue but the helper is not busy.

Every helper is teased by someone.