Daffodil International University

Faculty of Science & Information Technology

Department of Computer Science & Engineering

Mid Examination, Spring 2026

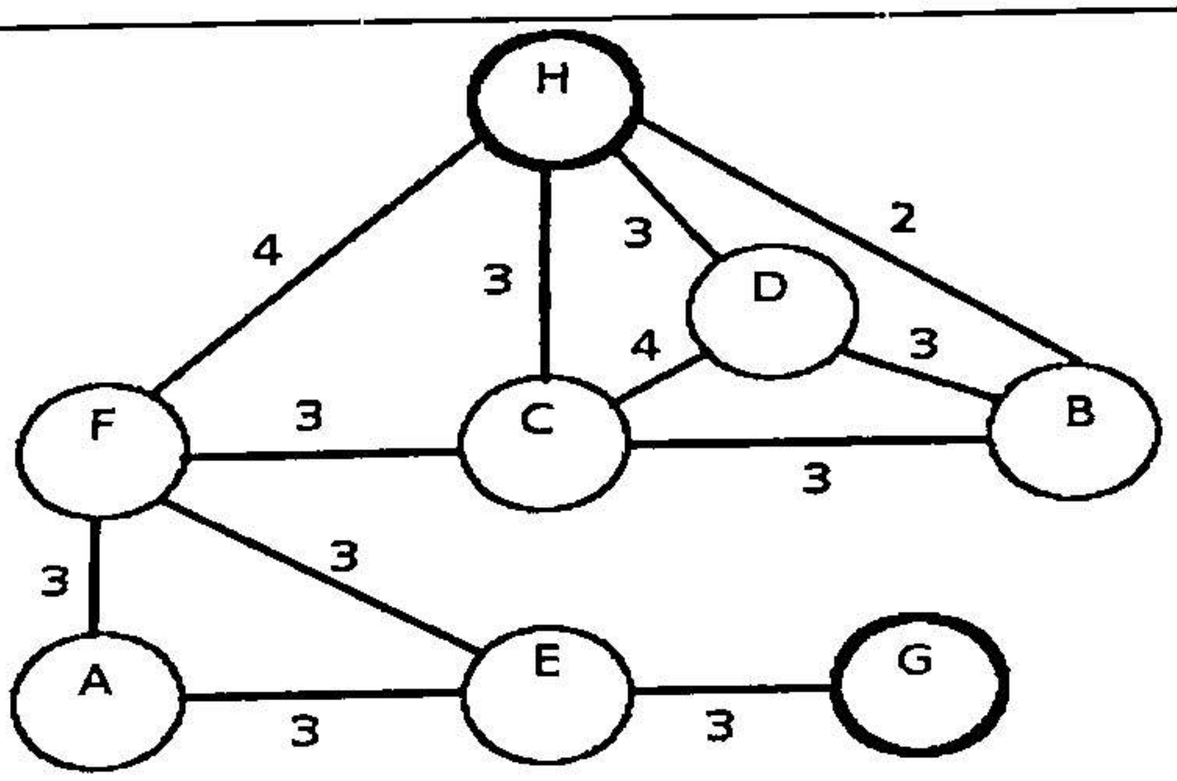
Course Code:CSE316 , Course Title: Artificial Intelligence

Level:3 Term:3 Batch:All

Time: 01:50 Hrs **Marks: 25**

Answer ALL Questions [Optional]

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.	Consider that an intelligent agent measures the amount of ammonia gas in a poultry farm and activates a siren in the owner's office when the amount of gas crosses a certain level of threshold. It also takes photographs whenever someone enters into the shed. Agents send all this data (amount of ammonia gas in the air and the image of the person if anyone enters) to a web-based system every minute so that the owner can monitor gas level and intruder to act accordingly.			CO
	a)	Give the PEAS description of the task environment for the agent described.	3	
	b)	Mention the environment types for this agent.	3	
	c)	Propose an agent model/type for this problem and describe it.	3	
2.	Three missionaries and three cannibals are on one side of the river, along with a boat that can hold one or two persons. Find a way to get everyone to the other side, without ever leaving a group of missionaries in one place outnumbered by the cannibals in that place. Formulate the problem precisely, making only those distinctions necessary to ensure a valid solution.			CO
	a)	Formulate this problem as an AI problem.	2	
3.	 Consider the following scenario, where the start node is **H** and the goal node is **G**.Now,			CO

	perform the following two searches on the above scenario.			
	a)	Uniform-cost search.	3	
	b)	Depth-limited search (l = 4).	3	
	c)	Breadth First Search.Depth First Search	3	
4.	Write the answer to each of the following questions in ***a single sentence.***			CO
	a)	If the environment of the vacuum world consists of *n* squares and 2 cleaners, how many states will there be in the state space?	1	
	b)	If the environment of the vacuum world consists of *n* squares and *m* cleaners, how many states will there be in the state space?	1	
	c)	How many possible sequences are there to investigate in the complete-state formulation for *n*-queens problem?	1	
	d)	Why all breadth-first searches uniform-cost search but not vice versa?	1	
	e)	Which component of an expert system provides an interface for updating knowledge?	1	

DATA: 03.03.26

Justice for Hadi