Quiz-2

Course Code: CSE316

Course Title: Artificial Intelligence

Time: 35 minutes

1	The following graph represents a set of connected cities with their **step costs** (in km) and **heuristic values h(n)** (estimated straight-line distance to the goal city 'G'): **City** | **Connected to (cost in km)** | **h(n) (km)** A | B(2), C(3) | 7 B | D(4), E(6) | 5 C | F(5) | 4 D | G(3) | 2 E | G(5) | 1 F | G(6) | 2 G | – | 0	
(a)	Analyze the given problem and **select the most appropriate informed search algorithm** (from the slides) to reach the goal 'G' from 'A'. Explain your choice by comparing at least two algorithms and mentioning the role of the **admissibility** property in your selection.	[3]
(b)	Using the chosen algorithm, show the **sequence of node expansions** and compute all relevant g(n), h(n), and f(n) values until the goal is reached.	[6]
(c)	Suppose that the heuristic values of nodes **B** and **C** are slightly **overestimated**. Discuss how this affects the **admissibility** of the heuristic and analyze the impact on the **optimality and performance** of your chosen algorithm.	[3]
(d)	You are part of a team developing a **medical expert system** that recommends possible diseases based on patient symptoms. The system uses a **knowledge base, inference engine,** and **explanation facility**. Explain how **forward chaining** and **backward chaining** would behave differently in this diagnostic system. Provide an example scenario for each.	[3]