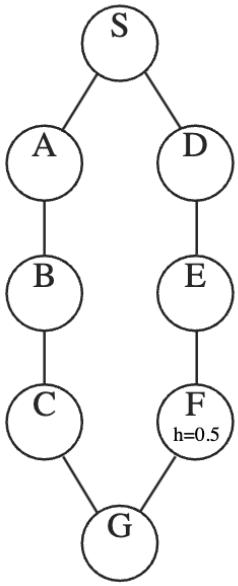
BRAC University
Department of Computer Science and Engineering

CSE 422: Artificial Intelligence (B)

Quiz 01: Spring 2025 Time: 30 Minutes Marks: 10

Name		ID		Section	



1. All edges in the graph have cost 1. Suppose that you are designing a heuristic h. You are told that $h(F) = 0.5$, but given no other information. Answer these two questions:

   (a) What ranges of values are possible for $h(D)$ if h has to be admissible.

   (b) What ranges of values are possible for $h(D)$ if h has to be consistent.

   Your answer should be a range, e.g. $x \leq h(D) < y$. You may assume that h is nonnegative.

(a) $0 \leq h(D) \leq 3$ The path to goal from D is 3.

(b) $0 \leq h(D) \leq 2.5$ In order for $h(E)$ to be consistent, it must hold that $h(E) - h(F) \leq 1$, since the path from E to F is of cost 1. Similarly, it must hold that $h(D) - h(F) = h(D) - 0.5 \leq 2$, or $h(D) \leq 2.5$.