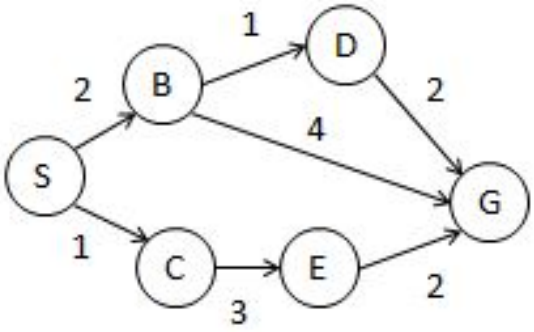
Consider the following search problem, where S is the start state and G is the goal, given as a graph:



	S	B	C	D	E	G
h_1	0	0	0	0	0	0
h_2	4	2	1	2	0	0
h_3	4	3	3	2	0	0

1. Which heuristics are admissible (or write none)?

2. Which heuristics are consistent (or write none)?

H1, H2 and H3 are all admissible.

H1 is consistent. H3 is consistent: f(n) along path to goal is non-decreasing. H2 not consistent b/c H(S) = 4 but g(S->C) + h(C) = 2. Thus f(n) decreases along path to goal.

3. For heuristic h3, fill in the following table, showing the node expanded, the fringe, and the closed list, for A* graph search. Each item on the fringe should be a pair: path taken to n and f(n).

Node Expanded	Fringe	Closed List
S	S -> B, 5 S->C, 4	S
C	S -> B, 5 S->C->E, 4	C
E	S->B, 5 S->C->E->G, 6	E
B	S->B->D, 5 S->C->E->G, 6	B
D	S->B->D->G, 5 S->C->E->G, 6	D
G		

4. For heuristic h3, what path will A^* graph search return?

S->B->D->G