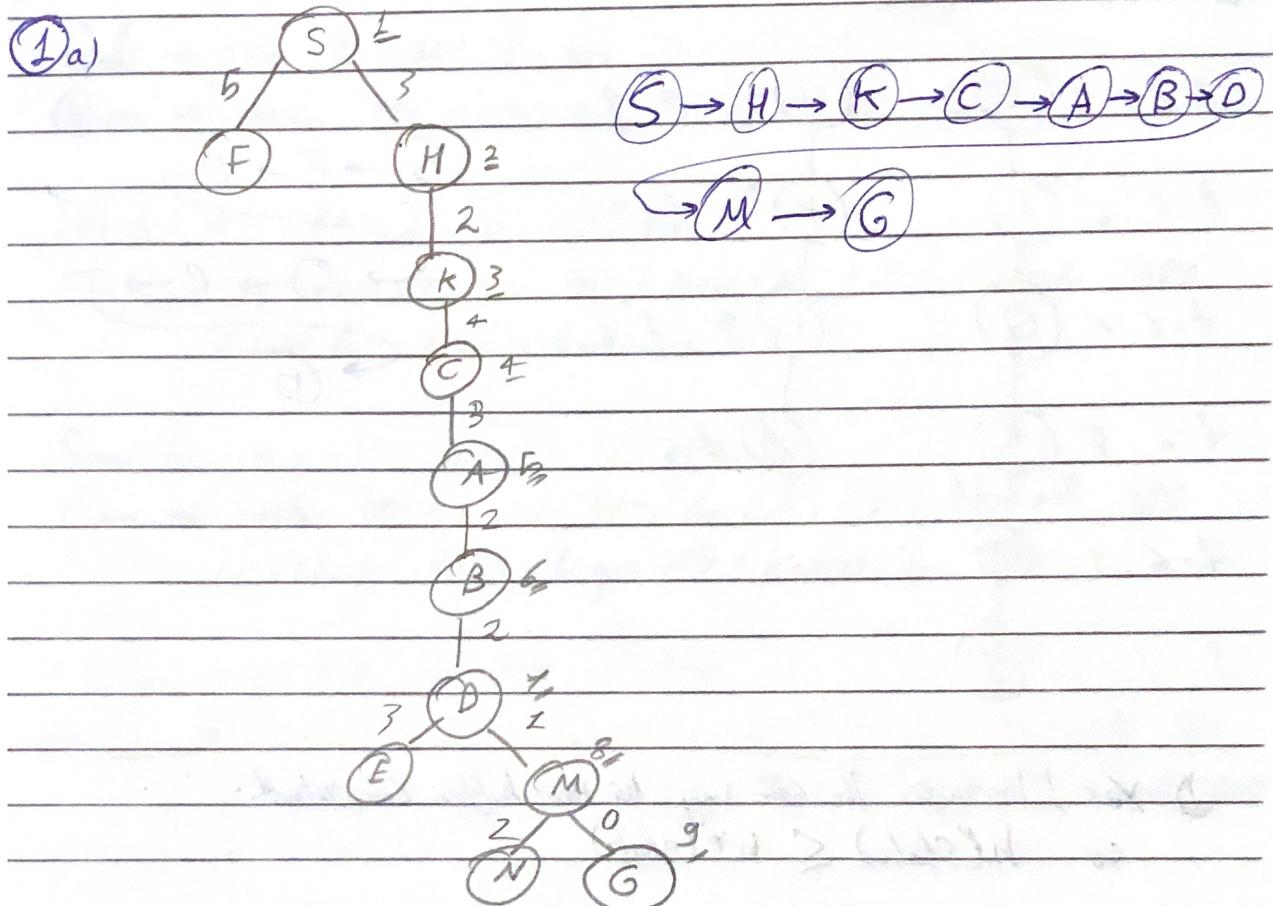
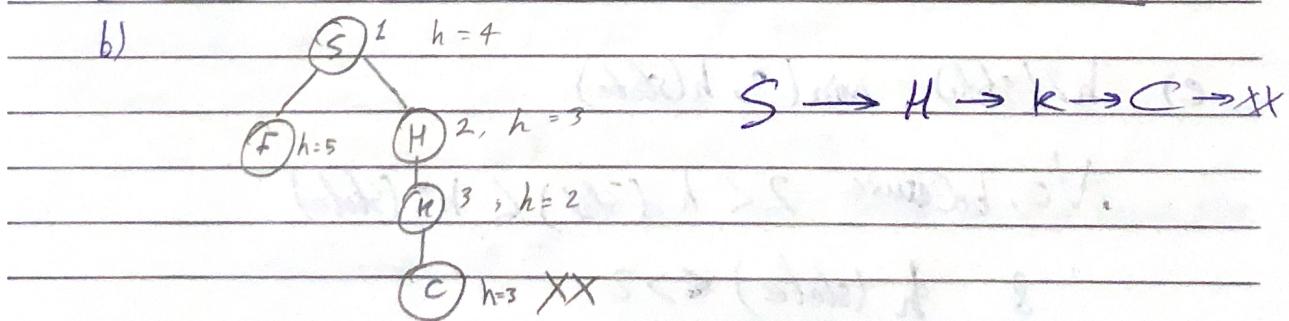
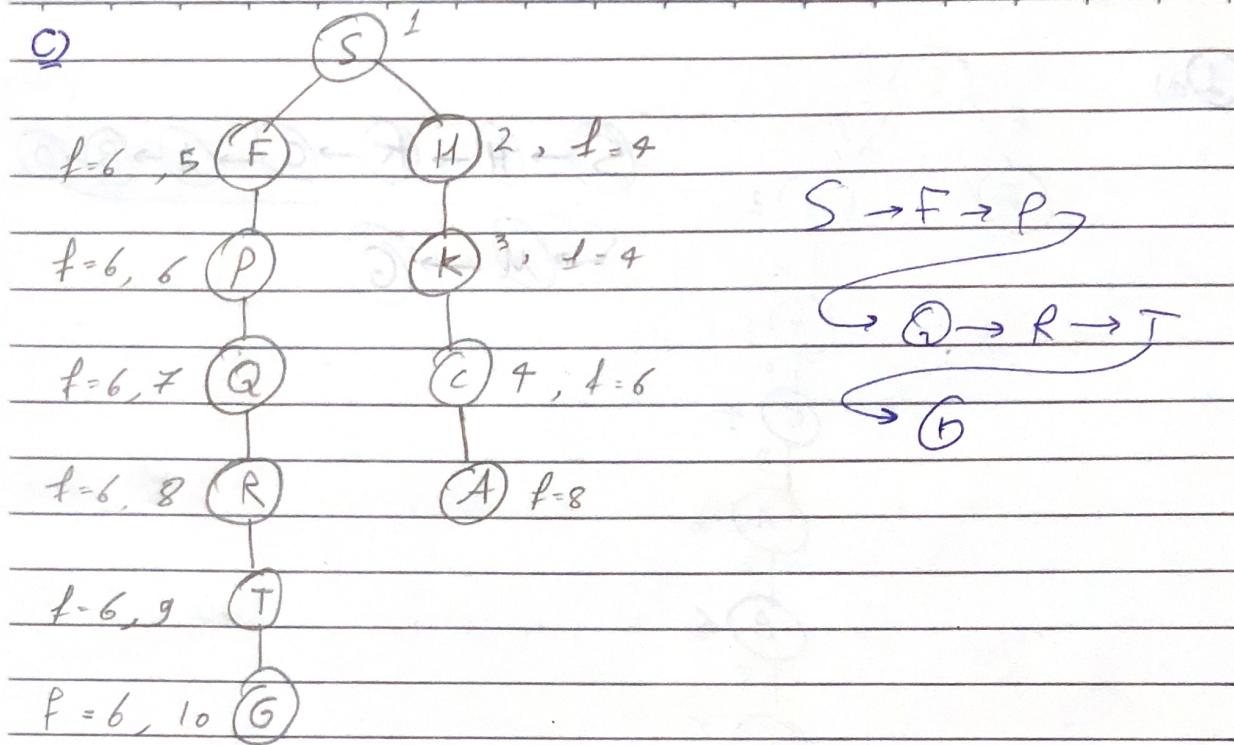


1a)



b)





Q Yes, because the same way as manhattan computed.
so $h^2(\text{state}) \leq h^*(\text{state})$

e) $h_2(\text{state}) = \min(2, h(\text{state}))$

No, because $2 < h(\text{state}) \leq h^*(\text{state})$

& $h(\text{state}) \gg 2$

f) $h_3(\text{state}) = \max(2, h(\text{state}))$

No, $h^*(M) > h^*(M)$

if $h_3(M) = 1$

2)

(2)

Dallas $\Rightarrow g = 0, h = 303, f = 303$

Queue \Rightarrow Houston, 380 / Little Rock, 314 / El Paso, 510

Little Rock $\Rightarrow g = 74, h = 240, f = 314$

Queue \Rightarrow Houston, 380 / El Paso, 510 / New OR, 496 / Nashville, 389
 / Saint Louis, 314 / Oklahoma, 383

Saint Louis $\Rightarrow g = 134, h = 180, f = 314$

Queue \Rightarrow Houston, 380 / El Paso, 510 / New OR, 496 / Nashville, 389
 / Oklahoma, 383 / Chicago, 345 / Kansas City, 378

Chicago $\Rightarrow g = 238, h = 107, f = 345$

Queue \Rightarrow Houston, 380 / El Paso, 510 / New OR, 496 / Nashville, 389
 / Oklahoma, 383 / Kansas City, 378 / Pittsburgh, 471 / Duluth, 505
 / Omaha, 530

Kansas City $\Rightarrow g = 202, h = 171, f = 378$

Queue \Rightarrow Houston, 380 / El Paso, 510 / New OR, 496
 / Oklahoma, 383 / ~~Kansas City, 378~~
 / Pittsburgh, 471 / ~~Duluth, 505~~ / Omaha, 530
 / Denver, 602

Houston $\Rightarrow g = 48, h = 332, f = 380$

Queue \Rightarrow El Paso, 510 / New OR, 496 / Nashville, 389 / Oklahoma, 383
 / Pittsburgh, 471 / ~~Duluth, 505~~ / Omaha, 530 / Denver, 602

Subject _____

Date / /

Oklahoma City $\Rightarrow g = 146, h = 23, f = 383$

Queue \rightarrow El Paso, 510 / New OR, 450 / Nashville, 389

/ Pittsburgh, 471 / Duluth, 505 / Omaha, 530 / Denver, 607 /
Santa Fe, 585 / Atlanta, 502 / Raleigh, 520

Nashville $\Rightarrow g = 128, h = 322, f = 450$

Queue \Rightarrow El Paso, 510 / New OR, 450 / Pittsburgh, 471 / Duluth, 505
/ Omaha, 530 / Denver, 607 / Santa Fe, 585 / Atlanta, 502 / Raleigh, 520

New Orleans $\Rightarrow g = 128, h = 322, f = 450$

Queue \Rightarrow El Paso, 510 / Pittsburgh, 471 / Duluth, 505 / Omaha, 530
/ Denver, 607 / Santa Fe, 585 / Atlanta, 502 / Raleigh, 520 / Miami, 669

Pittsburgh $\Rightarrow g = 319, h = 152, f = 471$

Queue = El Paso, 510 / Duluth, 505 / Omaha, 530 / Denver, 607 /

Santa Fe, 585 / Atlanta, 502 / Raleigh, 520 / Miami, 669

Washington, 642 / New York, 583 / Toronto, 489

Toronto $\Rightarrow g = 399, h = 90, f = 489$

Queue \Rightarrow El Paso, 510 / Duluth, 505 / Omaha, 530 / Denver, 607 / Santa Fe, 585

/ Atlanta, 502 / Raleigh, 520 / Miami, 669 / Washington, 642 / New York, 583

/ Sault Ste Marie, 489 / Montreal, 707

Sault Ste Marie(goal) $\Rightarrow g = 489, h = 0, f = 489$

II

OSCAR