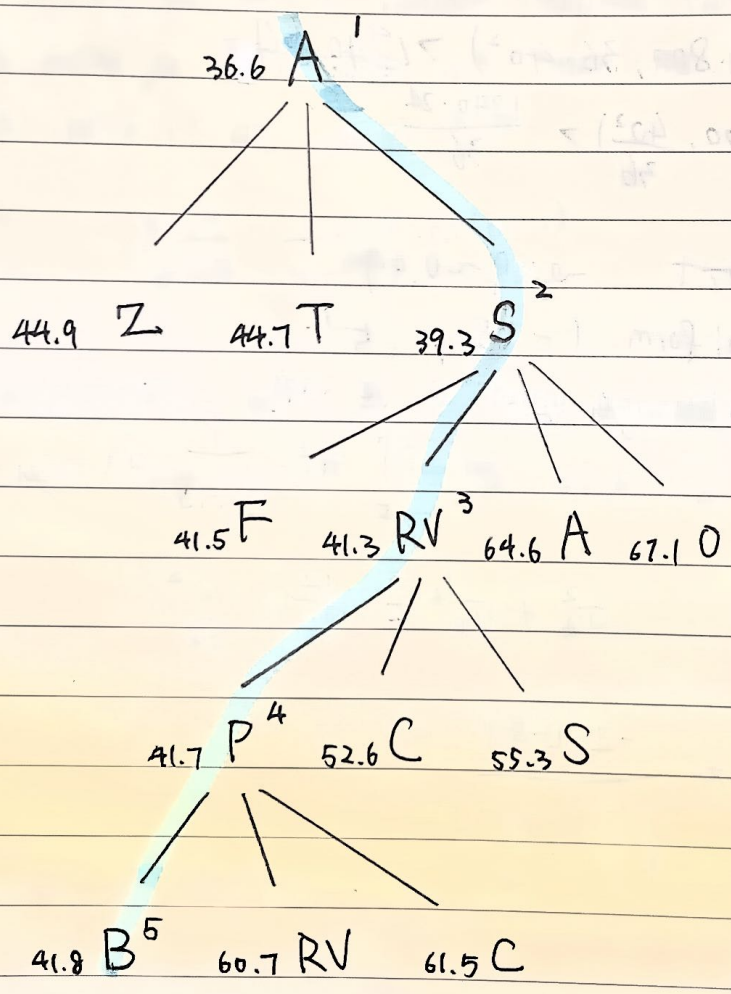
CS4613 HW2

Date. / /

1. (a) False
   (b) True
   (c) False
   (d) True

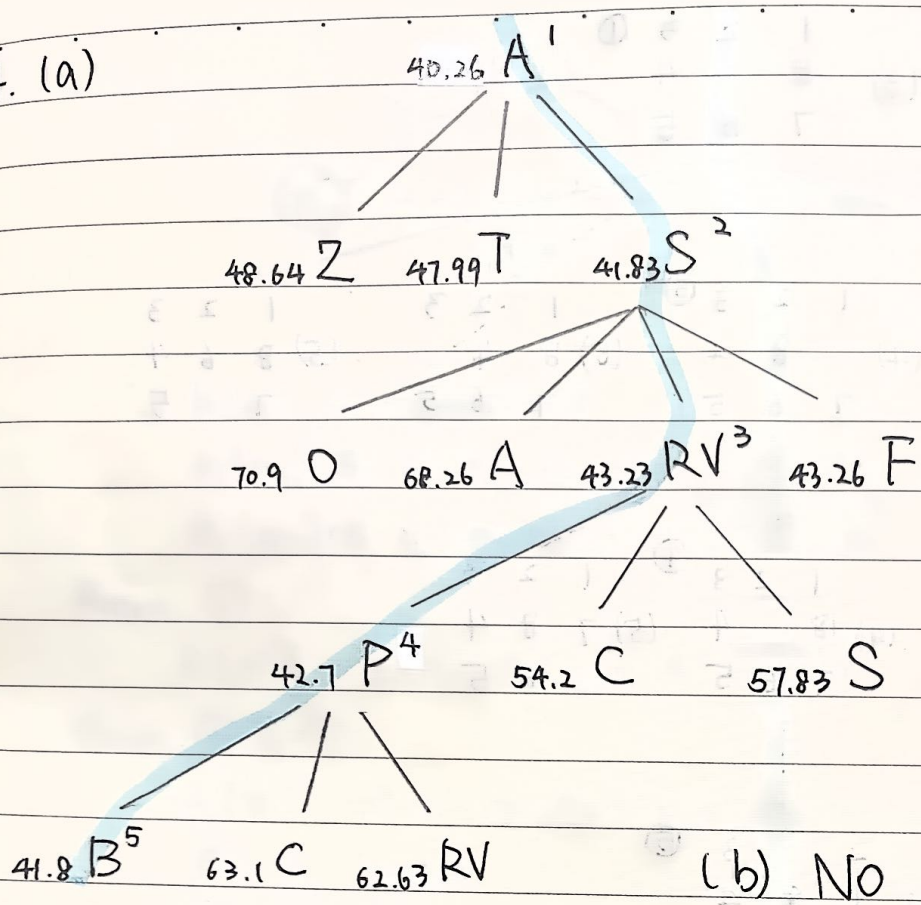
2. (a) False
   (b) False
   (c) True
   (d) True
   (e) True
   (f) True

3. (a) $h(n)$ = 0.1 USD * estimated straight line distance from n to goal
   (b)



Date. / /

4. (a)



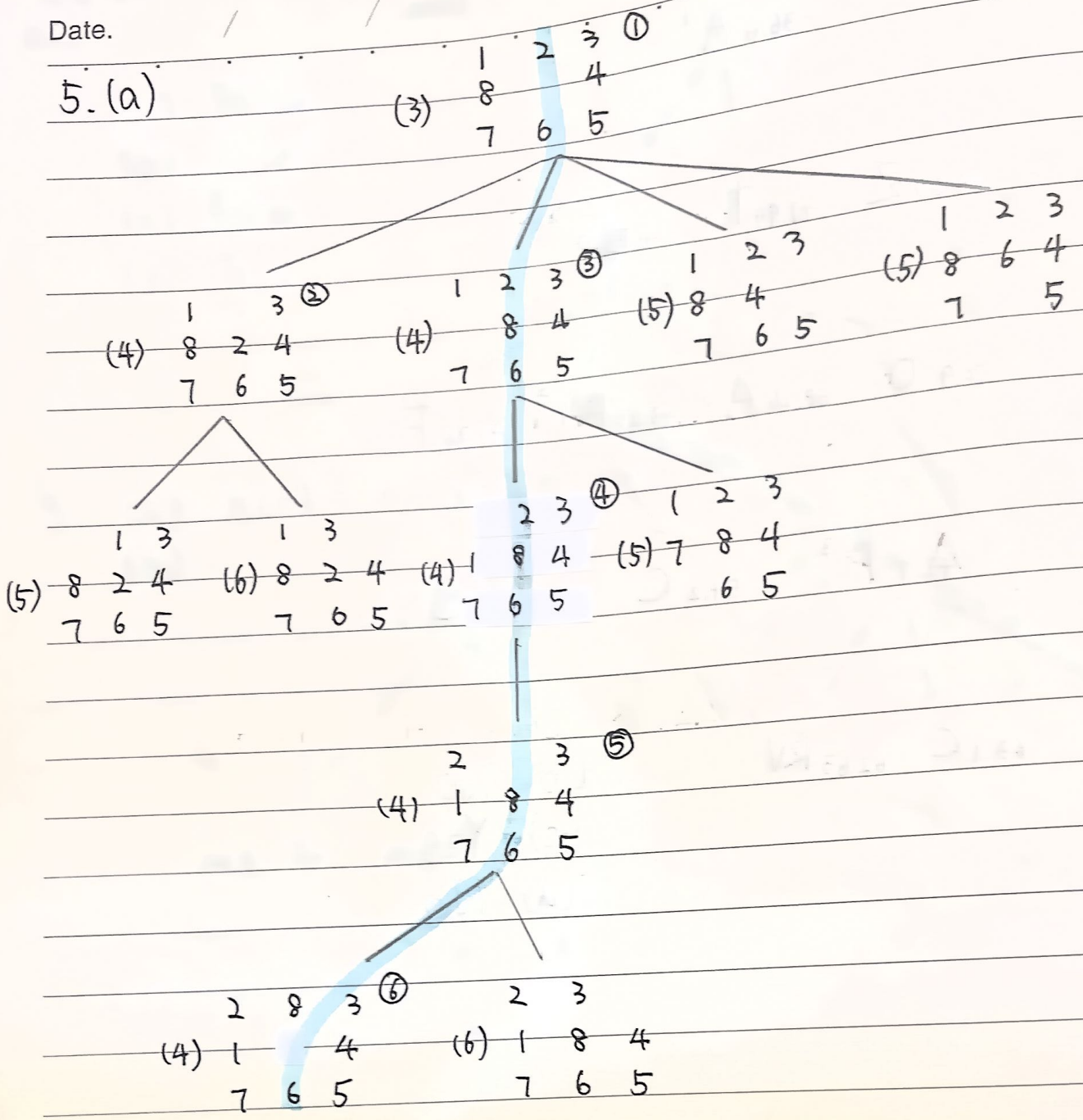
(b) No

(c) Yes

(d) No

Date. / /

5. (a)


(3) 1 2 3 ①
8 4
7 6 5
(4) 1 3 ②
8 2 4
7 6 5
(4) 1 2 3 ③
8 4
7 6 5
(5) 1 2 3
8 4
7 6 5
(5) 1 2 3
8 6 4
7 5
(5) 1 3
8 2 4
7 6 5
(6) 1 3
8 2 4
7 6 5
2 3 ④
(4) 1 8 4
7 6 5
(5) 1 2 3
7 8 4
6 5
2 3 ⑤
(4) 1 8 4
7 6 5
2 8 3 ⑥
(4) 1 4
7 6 5
2 3
(6) 1 8 4
7 6 5

(b) 12

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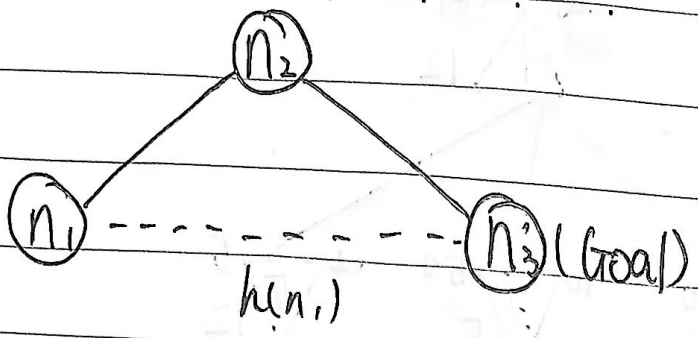
6.



∵ $h(n)$ is consistent

$h(n_1) \leq c(n_1, a, n_2) + h(n_2)$ ①

$h(n_2) \leq c(n_2, a, n_3) + h(n_3)$ ②

from ①:

$h(n_1) - c(n_1, a, n_2) \leq h(n_2)$ ③

from ② & ③:

$h(n_1) - c(n_1, a, n_2) \leq c(n_2, a, n_3) + h(n_3)$

∵ n_3 is Goal

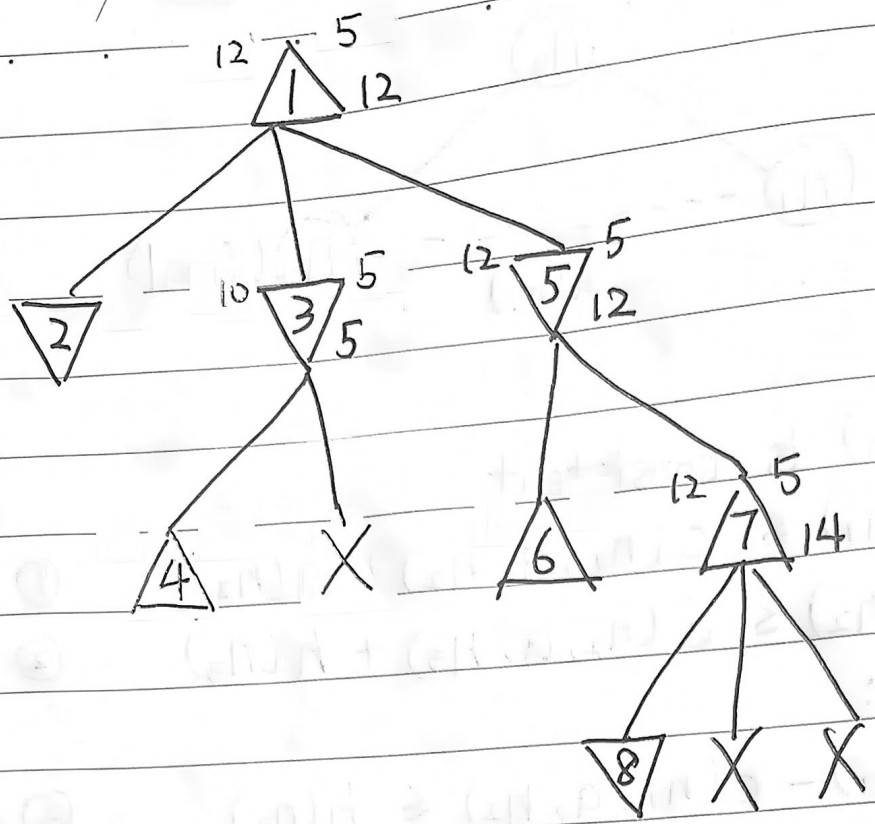
∴ $h(n_3) = 0$

$h(n_1) \leq c(n_2, a, n_3) + c(n_1, a, n_2)$

$h(n_1) \leq g(n_3)$

Date. / /

7. MAX



The best action is 1 5 6.