

1.C

2.B

3.B

4.D

5.B

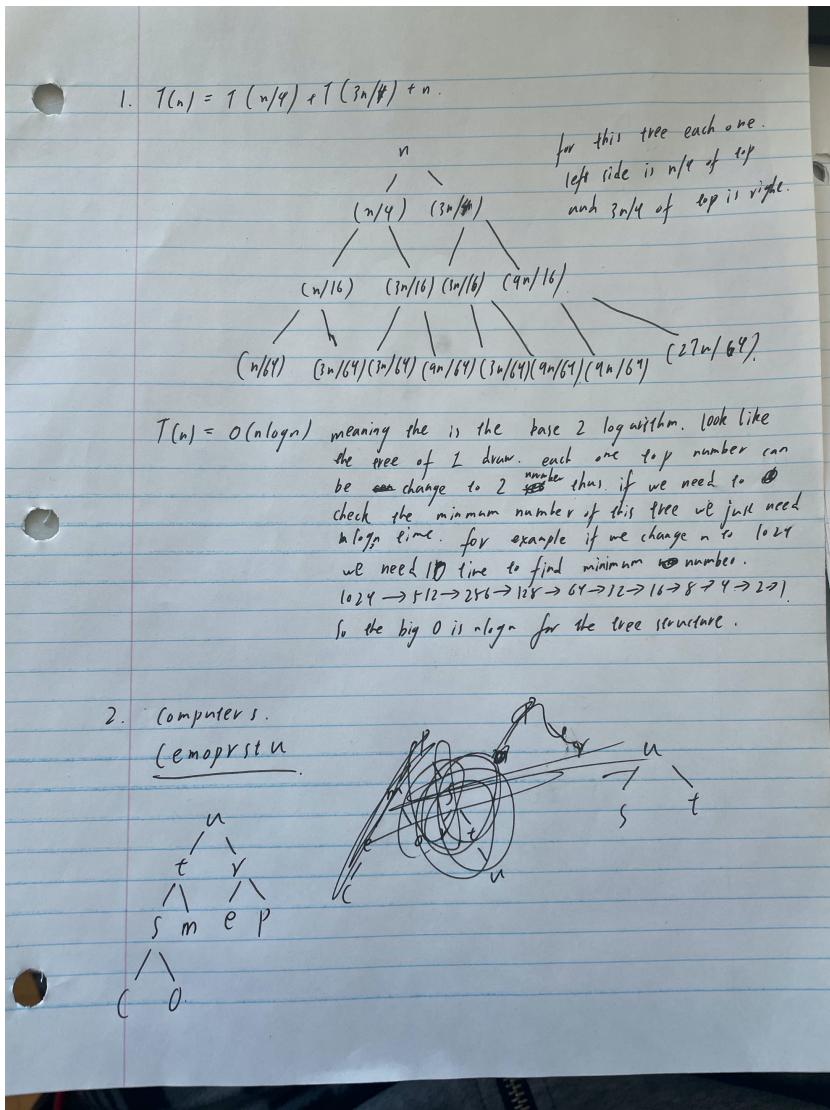
6.A

7.B

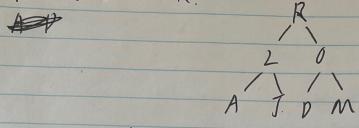
8.C

9.A

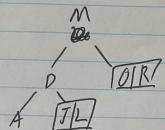
10.B



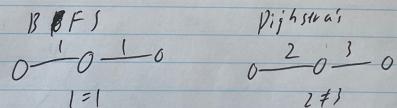
3.(a) A P J L M O R



(b)



24. No, we can't use FIFO queue in Dijkstra's algorithm, because the first reason is ~~it is better~~. I think if we do that we will get wrong answer, because we ~~are~~ use FIFO in BFS because we have each one edges in BFS they are equal, But in Dijkstra's algorithm, them are not equal.



- (2) we need add e to the cycle of MST and make a new cycle of them, the cycle is unique. And ~~we~~ delete the maximum edges of this cycle that make need calculate thus ~~take~~ get new graph in time proportional to V.

7. String  $w = (ab)^n$ ,  $n \geq 2$  and  $n \in N$   
if  $n = 3$ .

$$w = ababab.$$

$$pat = \underbrace{ab}_{\text{1}} \underbrace{ab}_{\text{2}} \underbrace{ab}_{\text{3}}$$

if  $n$  is even the ~~first~~ top pair equal  
to the end part. and use kmp.  
the border array will be  $(ab)^{\frac{n}{2}}$   
and if  $n$  is a odd number is  
border array will be  $(ab)^{\frac{n-1}{2}}$ .

so the border array is  $\oplus (ab)^{\frac{n-1}{2}}$

7.(2).  $689479 \quad 479 \quad h(x) = x \bmod 13$

$$0 \quad 68 \% 13 = 6$$

$$1 \quad 68 \% 13 = 15$$

$$(479 \bmod 13) = 2.$$

~~18~~ 2  $689 \% 13 = 0$

$$\left\{ \begin{array}{l} x_3 \quad 894 \% 13 = 96 \\ x_4 \quad 941 \% 13 = 46 \\ x_5 \quad 479 \% 13 = 2. \end{array} \right.$$

~~$s = xw = w^q =$~~   
~~So the border array of strings is  $(ab)^m$ .  $w = ababab$~~   
 ~~$ababab = ababab$~~   
 ~~$\oplus \text{ if } n = q$~~

(2) Rabin-Karp algorithm.  
 text =  $b \ 8 \ 9 \ 4 \ 7 \ 4$  pattern  $n = 4 \ 1 \ 9$ .  
 $h(x) = x \pmod{13}$ .  
 $h(x_0) = (x_0 \cdot 13^{n-1} + x_1 \cdots + x_{n-1}) \pmod{13}$ .  
 $h(x_0) = ((13^0 \cdot x_0 + 1) \pmod{13}) \pmod{13}$ .  
 $h(x_0) = (13^0 \cdot x_0 + 1) \pmod{13}$ .  
 $h(x_0) = (x_0 + 1) \pmod{13}$ .

6. A B A C A B A B A H C A A B A /  
 $A = 41 \quad B = 42 \quad C = 43$

~~A A!!  
 B B A.  
 A C C A  
 C H C A B.  
 A (A A A B A B.  
 B A A B B A B.  
 A D A A A C.~~

~~$A = 41 \quad C = 43$   
 $AA = 81 \quad CA = 85$   
 $AB = 82 \quad ADA = 86$   
 $AC = 83 \quad ACA = 87$   
 $B = 42 \quad ABA = 88$   
 $BA = 84$~~

The compression ratio is 5:1.