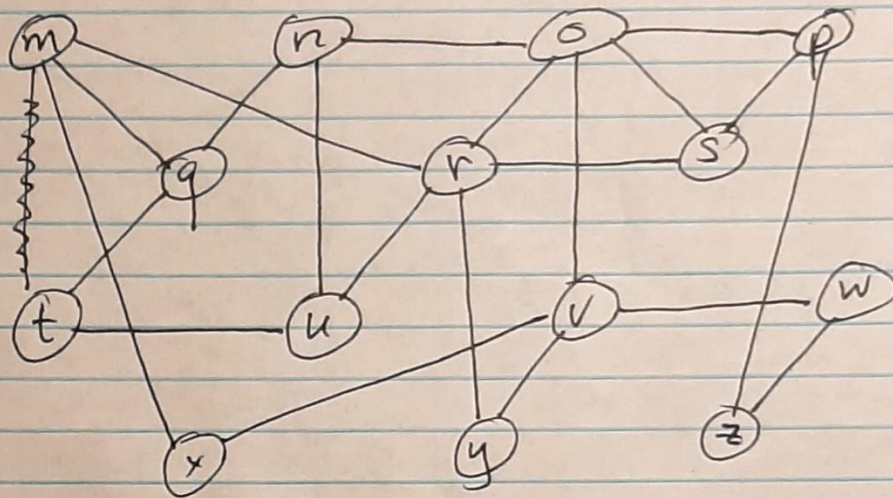


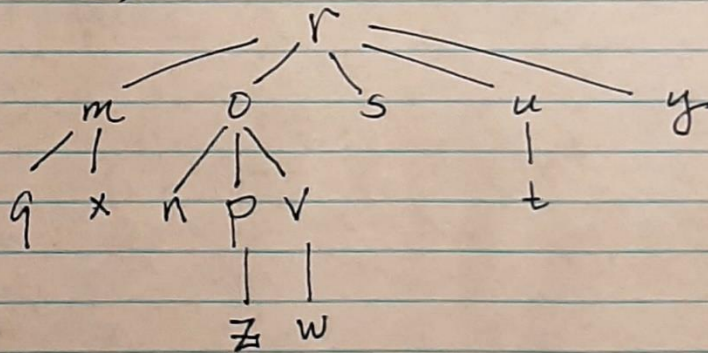
① G:

30



BFS (G, r)

BFTree (r)



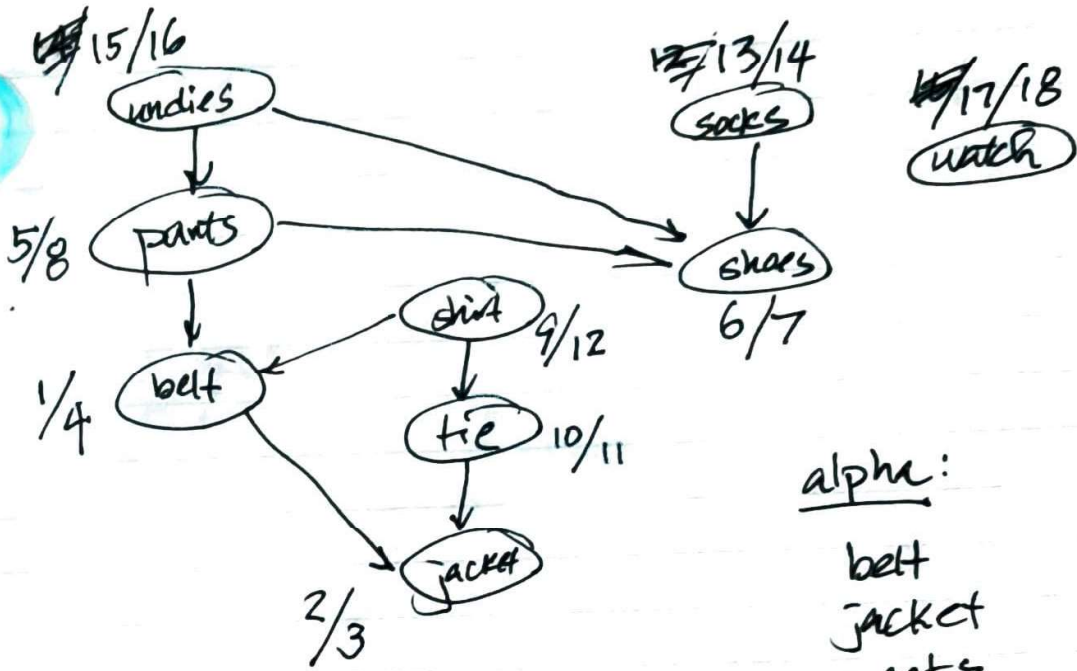
18: nodes at the right level 2/vertex
13: correct parent-child link 1/edge

31

* can get 31/30

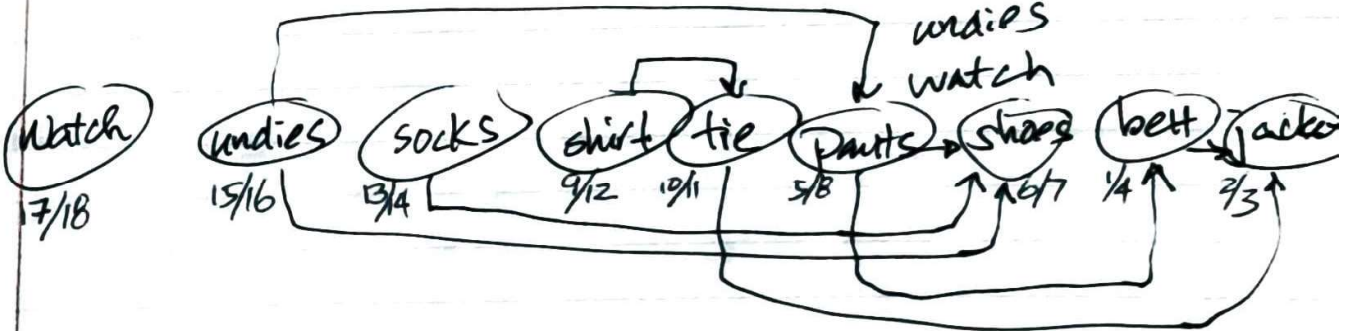
* it's fine if they just show the tree above without showing how they got it.

2
20



alpha:

- belt
- jacket
- pants
- shirt
- shoes
- socks
- tie
- undies
- watch



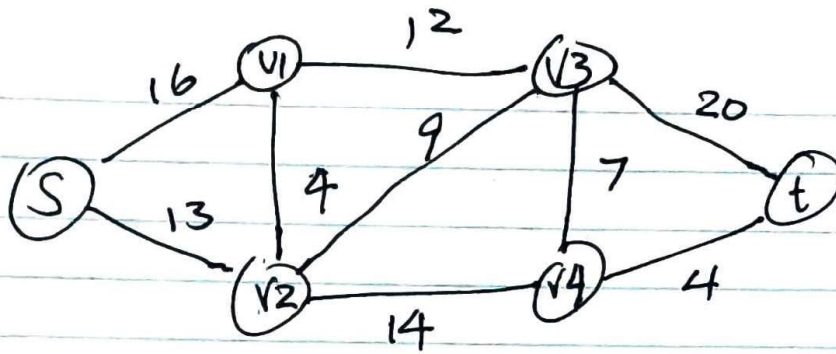
10 correct start/end time for @ v.

10 correct linear order

+ 5 if incorrect answer, partial credit for attempt. whichever is higher using 10+10 scale.

39

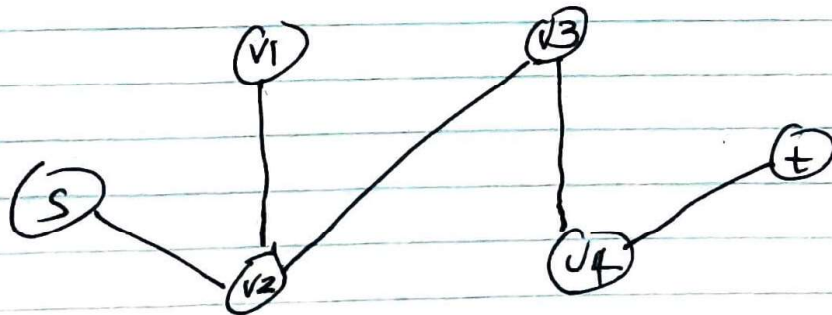
15



Kruskal :

10 {
4: V1 - V2
4: V4 - t
7: V3 - V4
9: V2 - V3
13: S - V2

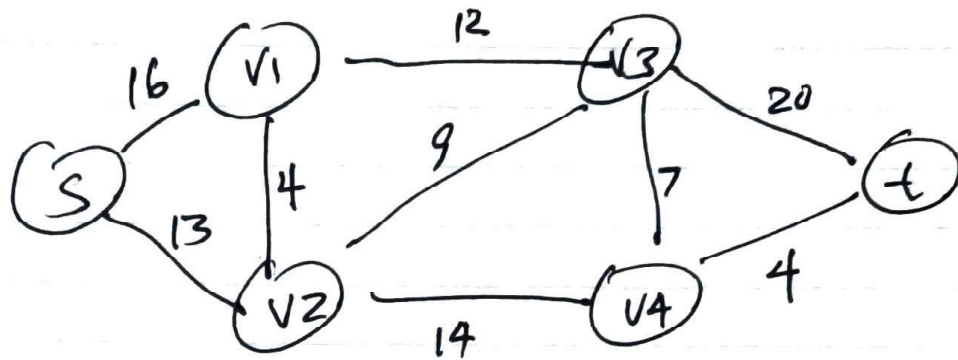
37



2 @ EDGE of MST
or +5 for trying

3b

15

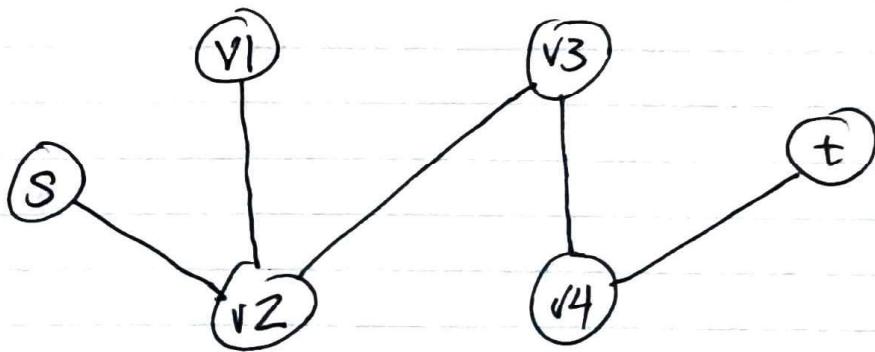


Prim's : (G, S)

Q: S
 : ~~V2~~ V2 V1
 : ~~V3~~ V3 V4
 : V3 V4
 : V4 t
 : t

10 }
 13: S-V2
 4: V1-V2
 9: V2-V3
 7: V3-V4
 4: V4-t

 37



28 @ EDGE OF MST
 or t5 for trying

7)



$$T(n) = 16T\left(\frac{n}{4}\right) + n^2$$

$$a = 16$$

$$b = 4$$

$$f(n) = n^2$$

$$f(n) = \Theta(n^2) = \Theta(n^c)$$

$$c = 2$$

$$\log_b a = \log_4 16 = 2$$

since $a = \log_b a$

then case 2.

$$T(n) = \Theta(n^c \log n) = \Theta(n^2 \log n)$$

+5 for trying

0 if they don't show their work

20 if correct answer with solution