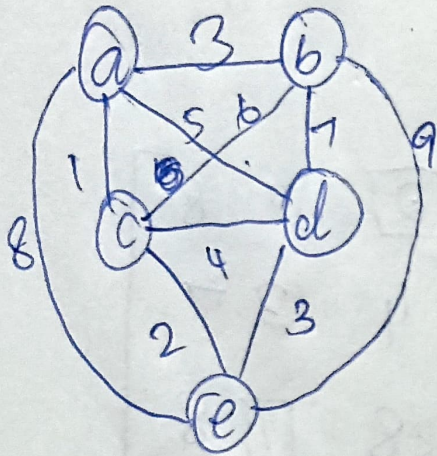


Travelling Salesman problem: using Branch and Bound:



$S \rightarrow$  sum

$$lb = 5/2$$

$$a \Rightarrow ac + ab = 1 + 8 = 9$$

$$b \Rightarrow ba + bd = 3 + 6 = 9$$

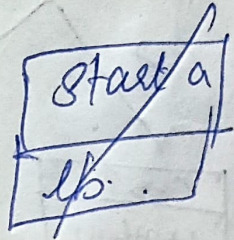
$$c \Rightarrow ca + ce = 1 + 2 = 3$$

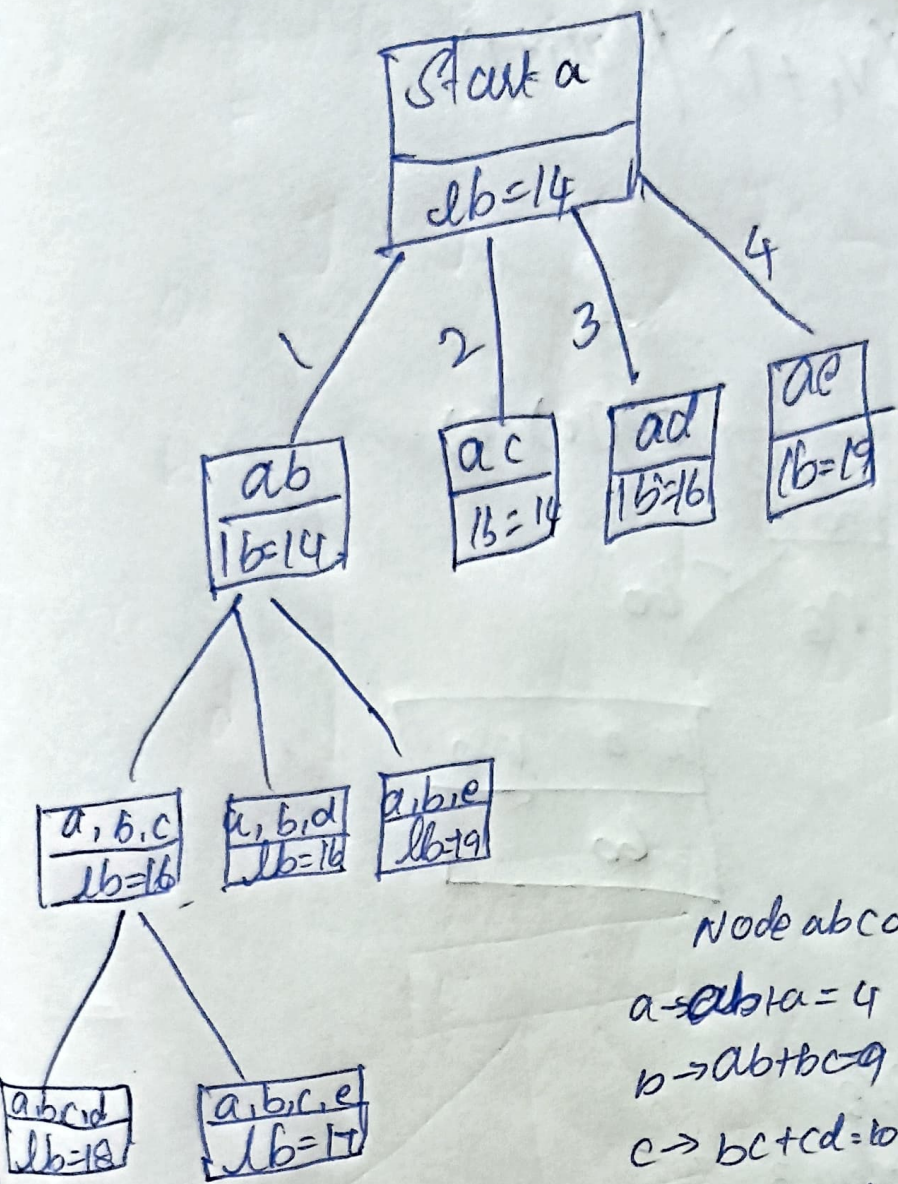
$$d \Rightarrow dc + de = 4 + 3 = 7$$

$$e \Rightarrow ec + ed = 2 + 3 = 5$$

$$\underline{28}$$

$$lb = \frac{28}{2} = 14$$





a → b → c → e → d → a.

Node abcd  
 a → abta = 4  
 b → abtbc = 9  
 c → bctcd = 10  
 d → cd = 10  
 e → 5  
 $\frac{35}{2}$   
 lb 17.5  
 = 18

node ~~abc~~ ab.  
 a → abtac = 3 + 1 = 4  
 b → abtbc = 3 + 6 = 9  
 c → 3  
 d → 7  
 e → 5  


---

 98

lb.  $\frac{98}{2} = 49$   
 node abc ab, bc.  
 a → abtac = 3 + 1 = 4  
 b → abtbc = 3 + 6 = 9  
 c → bctac = 6 + 1 = 7  
 d → 7  
 e → 5  


---

 25  
 $\frac{32}{2}$   
 lb = 16