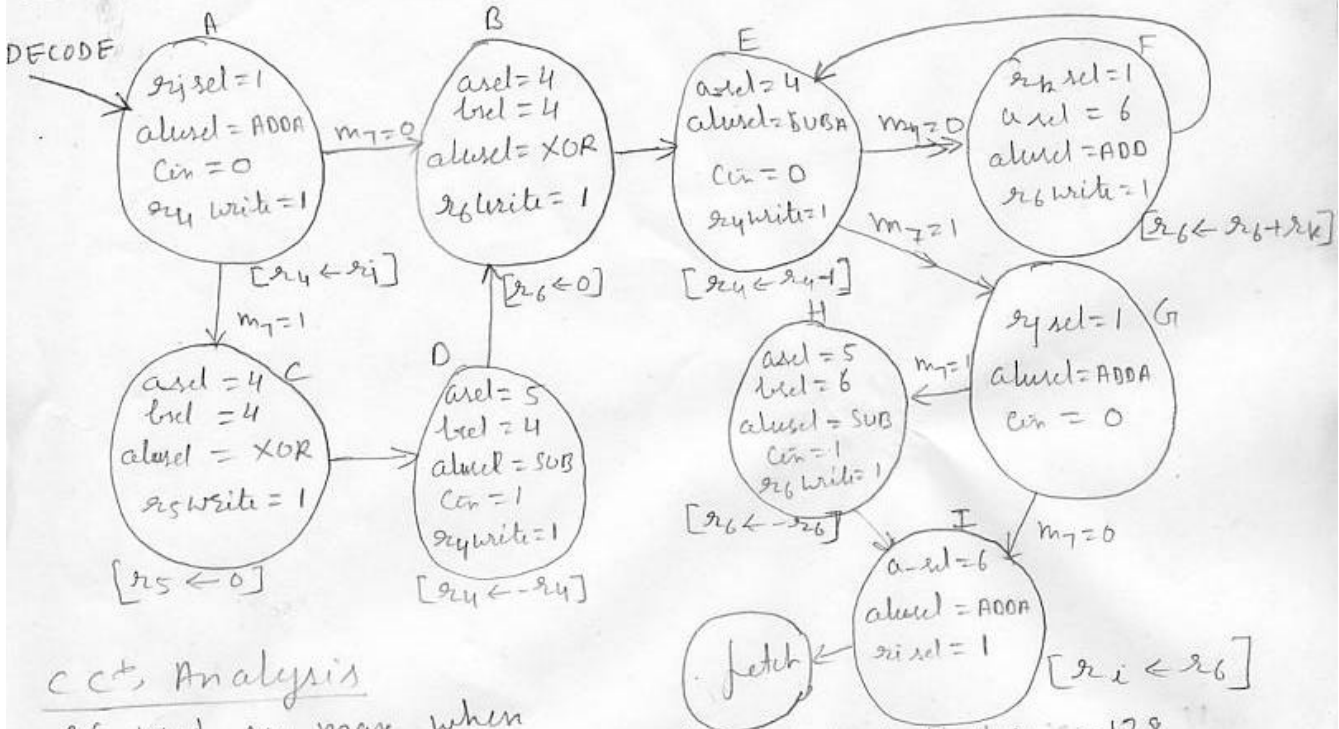


PROB NO 3



CC Analysis

CC used are max when  $b$  is  $-ve$  and its magnitude is max i.e.  $-128$   
 Then CC needed to complete  $A, B, C \neq 0$  states = 4  
 $G, H \neq I$  = 3  
 $E \neq F$  states =  $128 + 2 + 1$

Max. CC needed = 264

Now for Avg. no of CC's we take  $b$  as 4 but no  
 For any  $+ve$  value of  $b$  we need to execute A, B, E, G & I once.  
 and E & F as many times as value of  $b$ .  
 Now for value of  $b$  ranging from 1 to 7 we need

$$= 5 \times 7 + 2 \sum_{i=1}^7 i$$

$$= 35 + 56 = 91 \text{ CC}$$

when  $b$  is 0 then

$$= 5 \text{ CC}$$

Now for any  $-ve b$  we need to execute A, B, C, D, E, G, H & I once  
 and E & F as many times as value of  $b$   
 $\therefore$  CC's needed for all values of  $b$   $b/w$   $-1$  to  $-8$  we need

$$= 8 \times 8 + 2 \sum_{i=1}^8 i$$

$$= 64 + 72 = 136$$

Now total CC's needed to execute for all 16 possible  
 values of  $b$  ranging from  $-8$  to  $+7$  we need

$$= 232 \text{ CC}$$

$$\therefore \text{Avg. no of CC's need} = \frac{232}{16} = 14.5$$

$$\approx \underline{\underline{15}}$$