1. (20 points) Consider TM1:

Write the resulting configurations for the following input strings. (If there are more than 6 configurations, you may just provide the first six.) Assume the read/write head starts on the left-most character.

(a) 0011  
(b) 11
2. (15 points) Provide the state diagram for the PDA to accept 
$L_2=\{(bb)^ncca^n \mid n \geq 0\}$. Example words include: cc, bbcca, bbbbcca, 
bbbbbbccaaa. (Partial credit is awarded! Giving an informal description could 
earn partial credit too.)

3. (15 points) Provide an informal description for a Turing Machine that decides 
$L_3=\{(hi)^n(bye)^n \mid n \geq 0\}$. Example words in the language are $\varepsilon$, hibye, hihihihihihihihihihihihibiyebyebye. 

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