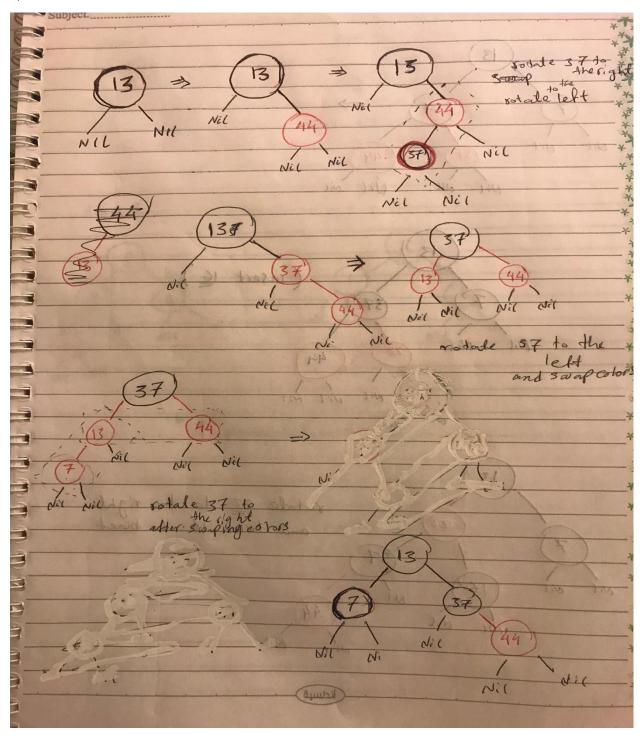
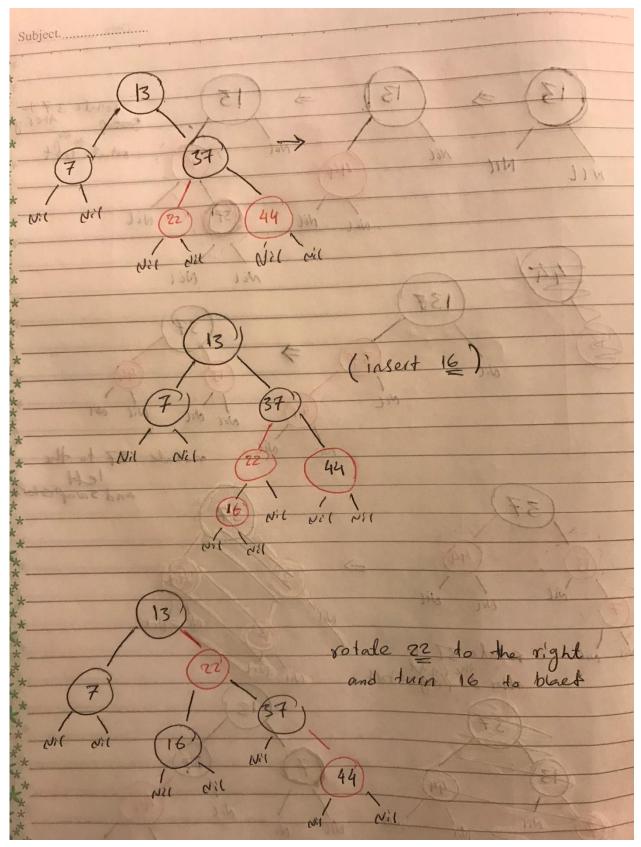
## Question 1:

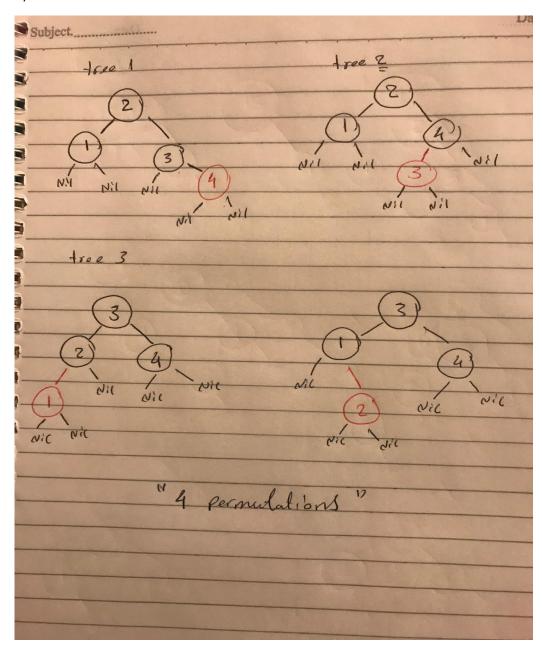
a)





## Question 1

b)



Bonus question (C)

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assume that a red-place free has to no	LOX
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assume that a red-plack tree has K now	1
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the root node is black with a chi	11
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Bouse case  the root node  is black anth a chi	2
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of the black root node wing the Same metod of insertion on the slide	nia
* to I the block cost rada	
xx + 00 We Voice 1000 From	16
which the de a short of balanting on the slight	1
the same the box to the first the	
· *	1
	149
insert a red Node as a child of the red node	- 211
INDEN a rea your as across of the see pool	
** so one have one black node and two red chil	
* * We as the right to land on with we sweet with	
a block nade and two ond chil	dron
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* onsert a red wode as achild of the black	root. Di
* DESERT INSERT A red Wode as aren 10 of the other	7001
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in this case, the tree will be balanced.	
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*	
E.K.	
L*	111
* 5 for n>1, we will always have A at le	ast
* * So, for n>1, we will always have # at le	
red pode.	

## Solved by SHOROUK GABR AWWAD 30002030

References:

The slides for lectures 13,14,15

Book: Introduction to Algorithms and Data Structure