

14

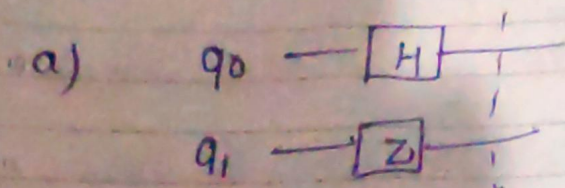
AUGUST
MONDAY

PSET-2

2017

WF 31 • 24

Q1 State vector at each step

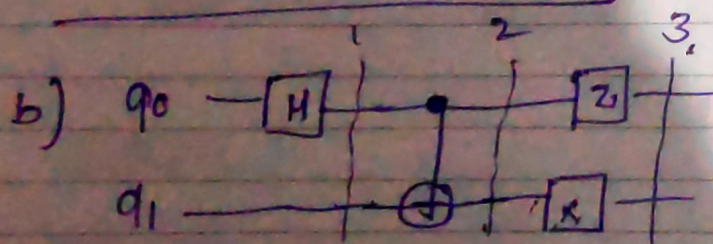
Since both the states start for $|0\rangle$ state

$$H|0\rangle = \frac{|0\rangle + |1\rangle}{\sqrt{2}}$$

$$Z|0\rangle = |0\rangle$$

So the final state

$$\frac{1}{\sqrt{2}} (|00\rangle + |10\rangle)$$



After ①

$$\frac{1}{\sqrt{2}} (|00\rangle + |10\rangle) \rightarrow \frac{1}{\sqrt{2}} (|00\rangle + |10\rangle)$$

7/17 AUGUST					
Mon	7	14	21	28	
Tue	1	8	15	22	29
Wed	2	9	16	23	30
Thu	3	10	17	24	31
Fri	4	11	18	25	
Sat	5	12	19	26	
Sun	6	13	20	27	

Notes

After ② Applying CNOT

$$\frac{1}{\sqrt{2}} (|00\rangle + |11\rangle)$$

After ③ Applying a Z and X gate

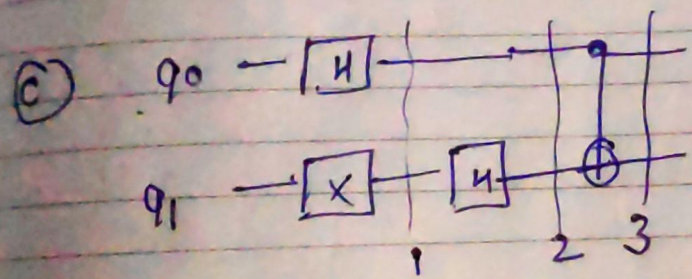
$$\frac{1}{\sqrt{2}} (|01\rangle + X|10\rangle)$$

$$\frac{1}{\sqrt{2}} (-|01\rangle + |10\rangle)$$

$$Z|1\rangle = -|1\rangle$$

$$X|0\rangle = |1\rangle$$

$$X|1\rangle = |0\rangle$$



After ① Hadamard entangls, X bit flip

$$\frac{1}{\sqrt{2}} (|10\rangle + |11\rangle)$$

After ② another Hadamard

$$\frac{1}{2} (|00\rangle + |01\rangle - |10\rangle - |11\rangle)$$

2017 SEPTEMBER

Mon	4	11	18	25
Tue	5	12	19	26
Wed	6	13	20	27
Thu	7	14	21	28
Fri	1	8	15	22
Sat	2	9	16	23
Sun	3	10	17	24

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AUGUST
WEDNESDAY

After (3) applying CNOT

$$\frac{1}{2} (|00\rangle - |01\rangle - |10\rangle + |11\rangle)$$

2017 AUGUST

	7	14	21	28
Mon	1	8	15	22
Tue	2	9	16	23
Wed	3	10	17	24
Thu	4	11	18	25
Fri	5	12	19	26
Sat	6	13	20	27

Notes