

Q-2: 6, 8, 10, 14

8-4: 28

Q-3: 21

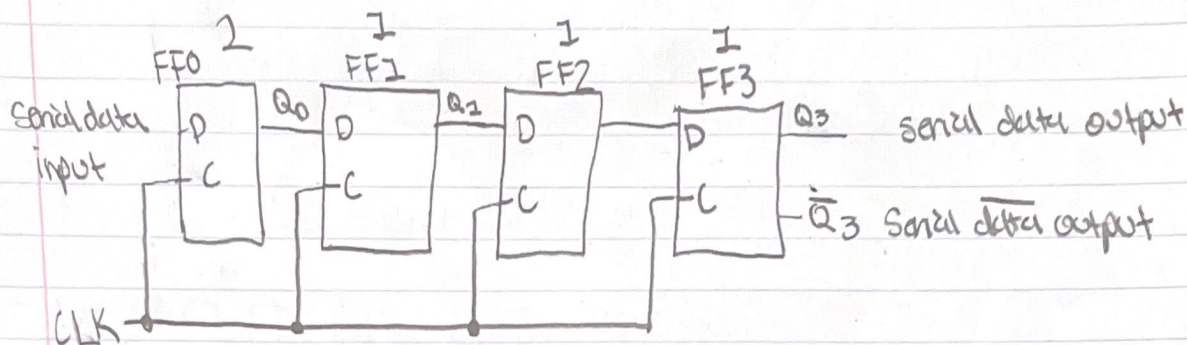
Striker Hwb

11/9/21

Phys 306

Physics 306 Homework #6

6). flip flop shift register



01101000 from given waveform

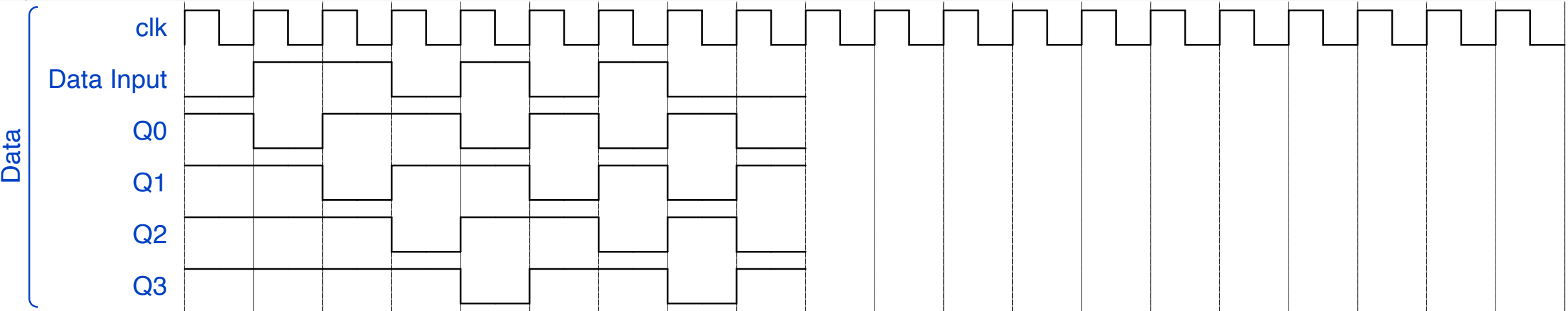
Cycle #	Q ₀	Q ₁	Q ₂	Q ₃
0	1	1	1	1
1	0	1	1	1
2	1	0	1	1
3	1	1	0	1
4	0	1	1	0
5	1	0	1	1
6	0	1	0	1
7	1	0	1	0
8	0	1	0	1
9	0	0	1	0

* see waveform

8). Shift register initial input
01010011100100110110

* see excel sheet & waveform

```
1 { "signal" : [  
2   ["Data",  
3     { name: "clk",      wave: "p....." },  
4     { "name": "Data Input", "wave": "lh.lhhl." },  
5     { "name": "Q0", "wave": "hlh.lhhl" },  
6     { "name": "Q1", "wave": "h.lh.lhhl" },  
7     { "name": "Q2", "wave": "h..lh.lhl" },  
8     { "name": "Q3", "wave": "h...lh.lh" },  
9   ],  
10 ],  
11  
12 ],  
13  
14 ],  
15 "config" : { "hscale" : 1 }  
16 }
```

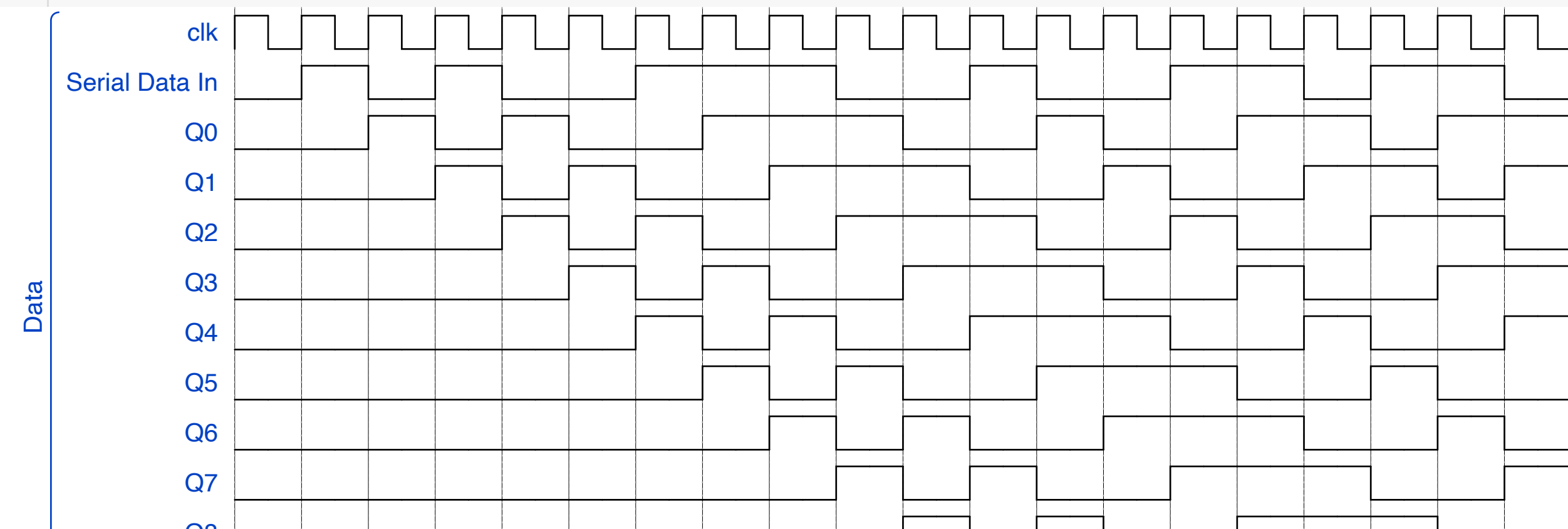


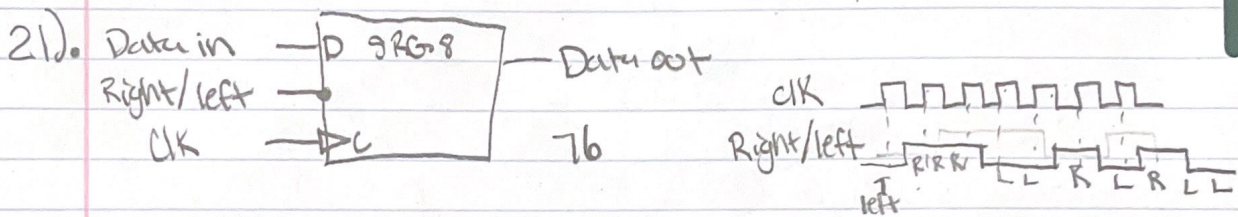
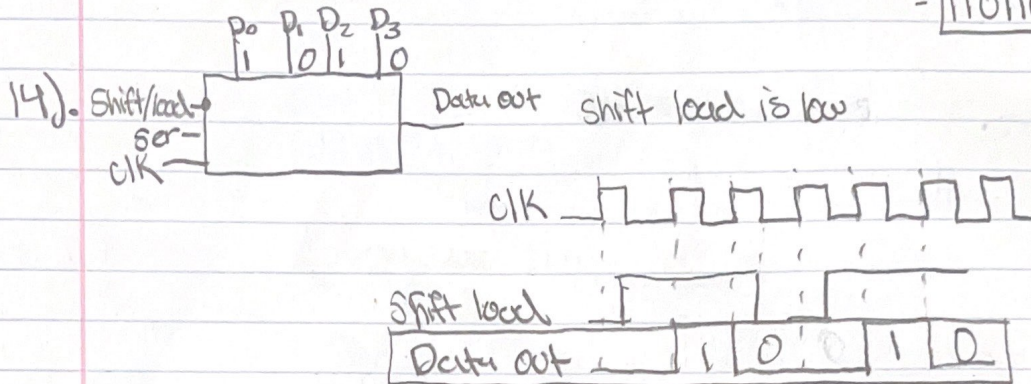
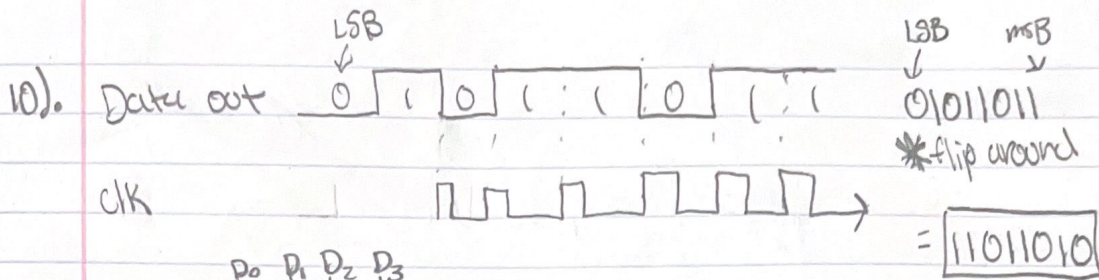
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	CLK	Q0	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9										
2	0	0	0	0	0	0	0	0	0	0	0										
3	1	0	0	0	0	0	0	0	0	0	0										
4	2	1	0	0	0	0	0	0	0	0	0										
5	3	0	1	0	0	0	0	0	0	0	0										
6	4	1	0	1	0	0	0	0	0	0	0										
7	5	0	1	0	1	0	0	0	0	0	0										
8	6	0	0	1	0	1	0	0	0	0	0										
9	7	1	0	0	1	0	1	0	0	0	0										
10	8	1	1	1	0	1	0	1	0	0	0										
11	9	1	0	1	1	0	1	0	1	0	0										
12	10	0	1	0	1	1	0	1	0	1	0										
13	11	0	0	1	0	1	1	0	1	0	1										
14	12	1	0	0	1	0	1	1	0	1	0										
15	13	0	1	0	0	1	0	1	1	0	1										
16	14	0	0	1	0	0	1	0	1	1	0										
17	15	1	0	0	1	0	0	1	0	1	1										
18	16	1	1	0	0	1	0	0	1	0	1										
19	17	0	1	1	0	0	1	0	0	1	0										
20	18	1	0	1	1	0	0	1	0	0	1										
21	19	1	1	0	1	1	0	0	1	0	0										
22	20	0	1	1	0	1	1	0	0	1	0										
23																					
24																					
25																					
26																					
27																					
28																					
29																					
30																					
31																					
32																					
33																					
34																					
35																					
36																					

Sheet1

+

```
3 { "name": "clk", "wave": "p....." },
4 { "name": "Serial Data In", "wave": "lhhlh..l.hl.h.lh.l" },
5 { "name": "Q0", "wave": "l.hlhl.h..l.hl.h.lh." },
6 { "name": "Q1", "wave": "l..hlhl.h..l.hl.h.lh" },
7 { "name": "Q2", "wave": "l...hlhl.h..l.hl.h.l" },
8 { "name": "Q3", "wave": "l....hlhl.h..l.hl.h." },
9 { "name": "Q4", "wave": "l.....hlhl.h..l.hl.h" },
10 { "name": "Q5", "wave": "l.....hlhl.h..l.hl." },
11 { "name": "Q6", "wave": "l.....hlhl.h..l.hl" },
12 { "name": "Q7", "wave": "l.....hlhl.h..l.h" },
13 { "name": "Q8", "wave": "l.....hlhl.h..l." },
14 { "name": "Q9", "wave": "l.....hlhl.h..l" },
15
16 ],
17 },
18 ],
19 "config" : { "hscale" : 1 }
20 }
21 }
```





State 0: Initial state 7b = 01001100

R	State 1	:	1001100
R	" "	2	01001100
R		3	00100110
R		4	00010011
L		5	00100110
L		6	01001100
R		7	00100110
L		8	01001100
R		9	00100110
L		10	01001100
L		11	10011000

28). CLK 

Q₉ = 0 1 0 0 0 1 0 0 0 0 0 1 0 0 0 0 Shift to the left

Q₈ 1 0 0 0 1 0 0 0 0 0 1 0 0 0

↓

↓

* See Excel sheet below :)

[illegible]