

hw3

共配置22分

3.53

Fill the Blank (3'): 每行完全对给1分

	cycle 0	cycle 1	cycle 2	cycle 3	cycle 4	cycle 5	cycle 6	cycle 7
D2	0	1	1	1	1	0	0	0
D1	0	1	1	0	0	1	1	0
D0	0	1	0	1	0	1	0	1

What is the circuits doing? (2'三种答案选一种, 如果有其它合理答案也给分)

- Enumerate all states of a 3-bit binary number
- A self reducing device
- Extend the time of one clock cycle

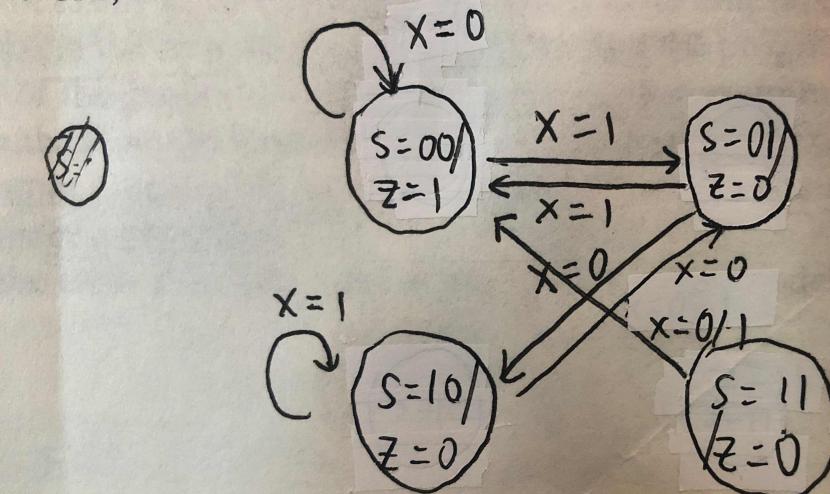
3.61

a (3') : 每列1分

Z	S'_1	S'_0
1	0	0
1	0	1
0	1	0
0	0	0
0	0	1
0	1	0
0	0	0
0	0	0

b.(2'): 状态机完全对给2分, 其他情况酌情扣分, moore型状态机具体写法不规范不扣分

n arc for each state/input pair. For example, if you had
sly only had an unfinished assignment in math and you
l an assignment in computing, you would transition from state
ate CM, as shown below.



4.1

Components of the Von Neumann Model:

- (a) **Memory (1')** : Storage of information (data/program)
- (b) **Processing Unit(1')**: Computation/Processing of Information
- (c) **Input(1')**: Means of getting information into the computer. e.g. keyboard, mouse
- (d) **Output(1')**: Means of getting information out of the computer. e.g. printer, monitor
- (e) **Control Unit(1')**: Makes sure that all the other parts perform their tasks correctly and at the correct time.

4.3 (1'说出关键句子即可)

The program counter does not maintain a count of any sort. **The value stored in the program counter is the address of the next instruction to be processed.** Hence the name 'Instruction Pointer' is more appropriate for it.

4.8

- a. 8(1')
- b. 7(1')
- c. 3(1')

4.10(3'每个指令一分)

	Fetch Ins.	Decode	Evaluate	Fetch Data	Execute	Store
PC	0001/0010/0000	/	/	/	0000	/
IR	0001/0010/0000	/	/	/	/	/
MAR	0001/0010/0000	/	/	0010	/	/
MDR	0001/0010/0000	/	/	0010	/	/

如果是电子书则为：

	Fetch Ins.	Decode	Evaluate	Fetch Data	Execute	Store
PC	0001/0110/1100	/	/	/	1100	/
IR	0001/0110/1100	/	/	/	/	/
MAR	0001/0110/1100	/	/	0110	/	/
MDR	0001/0110/1100	/	/	0110	/	/