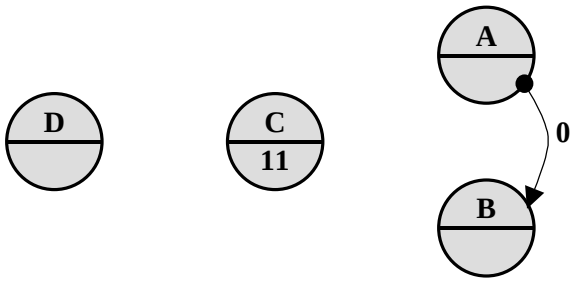
Dr. Bassem Al-Halabi, S&E362 October 25, 2000

Name: Grade: **/10**

[10] **1)** The following state table describes the behavior of a Moore sequential machine with 4 states A/B/C/D, 1 input X and 2 outputs Z1Z2.

[2] **1.a)** From the next state table, complete the state graph

Present State	Next State X= 0	Next State X= 1	Outputs Z1Z2
A	B	B	10
B	C	D	01
C	A	C	11
D	D	A	00



[+1] **1.b)** Describe the behavior of the above Moore machine in English. That is what sequences the outputs will go through if the input changes to a certain value in a certain state?

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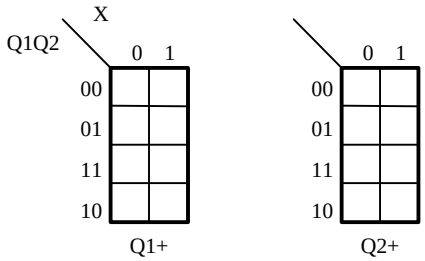
[2] **1.c)** **Use** the indicated binary assignments to complete the transition table below.

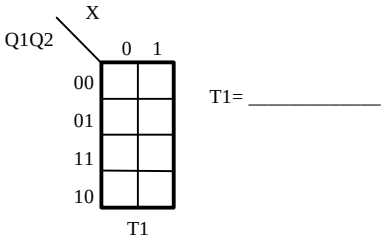
[2] **1.d)** Fill the next state maps for each of the two required flip-flops.

[2] **1.e)** It is required to use a TFF to implement Q1 and a JKFF to implement Q2. Fill the T and JK input excitation maps from the next state maps.

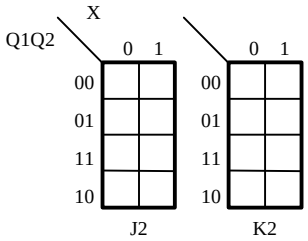
Present State	Next State X= 0	Next State X= 1	Outputs Z1Z2
00			
01			
11			
10			



[2] **1.f)** Write the minimized input expressions for each of the two flip-flops.



T1= _____



J2= _____

K2= _____