

一. (40 pts).Design a self-starting counter according to the following state diagram.

Note that the normal counting sequence is : 3,6,5,0,2, and repeat. Direct all illegal states to the state 5. 註: 爲統一閱卷, 請以 CBA之順序代表狀態 違者扣分!

(a) Use T flip-flops

(b) Use D flip-flops

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二. (40 pts) Design  $F(A,B,C,D) = \sum m(1,3,5,7,9,13) + d(4,14,15)$ , using a

(a) 2:1 Multiplexer

(b) 4:1 Multiplexer

(c) 8:1 Multiplexer

(d) Decoder