

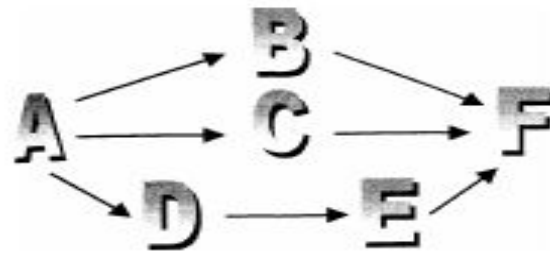
### HW3: Project X

A secret project by the government (let's call it Project X) will be executed by one person and consists of 6 tasks: A, B, C, D, E, and F. Figure 2.28 specifies the order in which the tasks need to be executed (precedence graph, cf. PERT/CPM). A possible execution trace is for example ABDCEF.

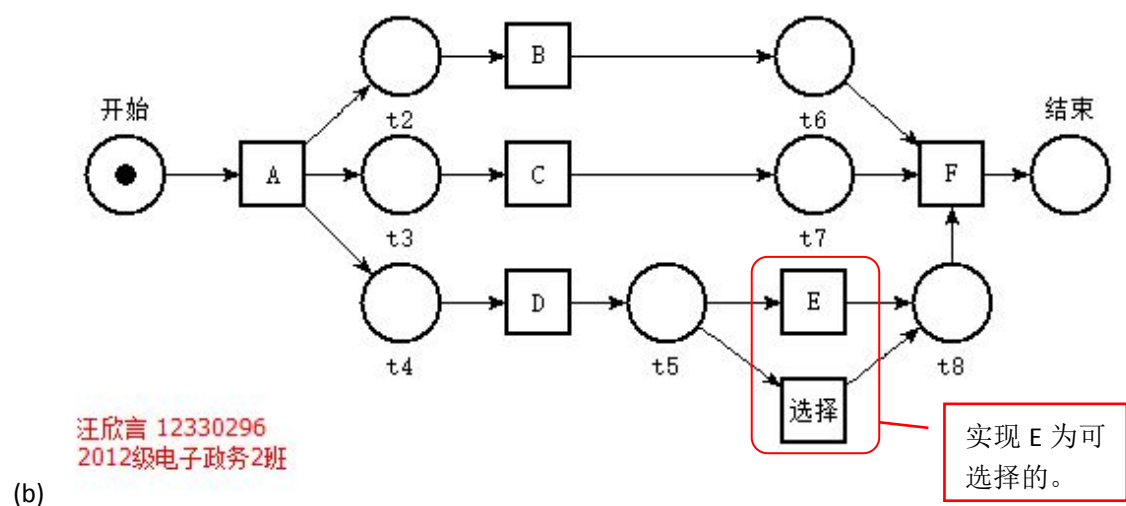
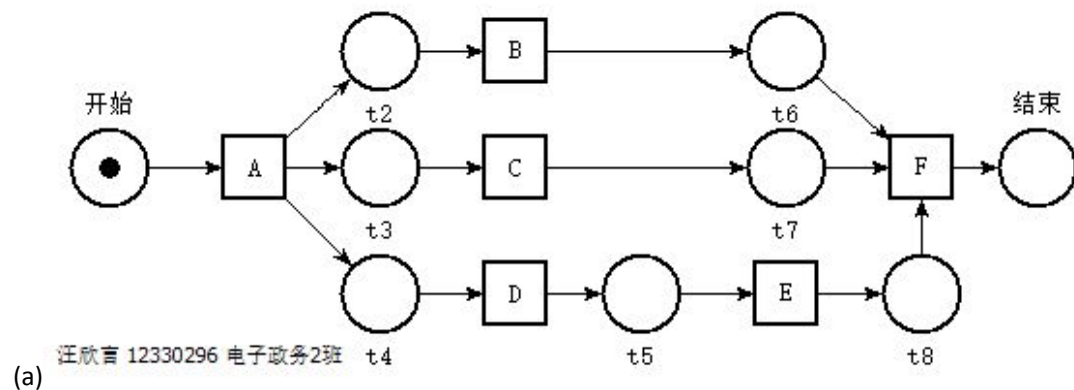
(a) Model the project in terms of a classical Petri net.

(b) How does one model so that E is optional?

(c) How does one model so that D and E should be executed consecutively, that is, B and C are not allowed between D and E?



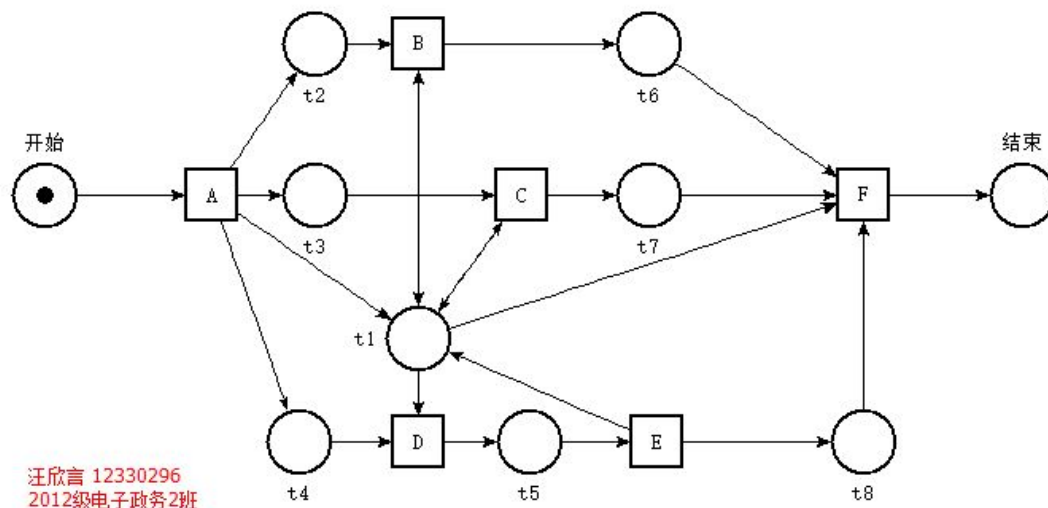
**Figure 2.28**  
Project X



(c)由题意可得，Project X 的执行流程必须是一下任意一种：

- 1) ABC(CB)DEF
- 2) ADEBC(CB)F
- 3) ABDECF
- 4) ACDEBF

修改(a)中的 Petri 网如下，即可达到目的。



修改理由：

t1 中有 token 时，若下一步执行 D，则 t5 中获取 token，然后 E 被执行，t8 和 t1 获取 token，此时再执行 B 或 C。显然 D 和 E 一定是连续执行的，满足对题意条件的分析。同理，t1 中有 token 先执行 B 或 C 时也满足条件。