16.3

$y_t \mid y_{t-1}$	$P(y_t \mid y_{t-1})$
$S_t = S_{t-1}$	p
$S_t = r$	$1-p$

where

$$r \in \{1, \ldots, 30\}$$

16.4

a b c d e a b c a a b c d e e e e a b c a b a b c d a b c

a $\xrightarrow{\times 7}$ b

a $\xrightarrow{\times 1}$ a

b $\xrightarrow{\times 6}$ c

b $\xrightarrow{\times 1}$ a

c $\xrightarrow{\times 3}$ d

c $\xrightarrow{\times 2}$ a

d $\xrightarrow{\times 2}$ e

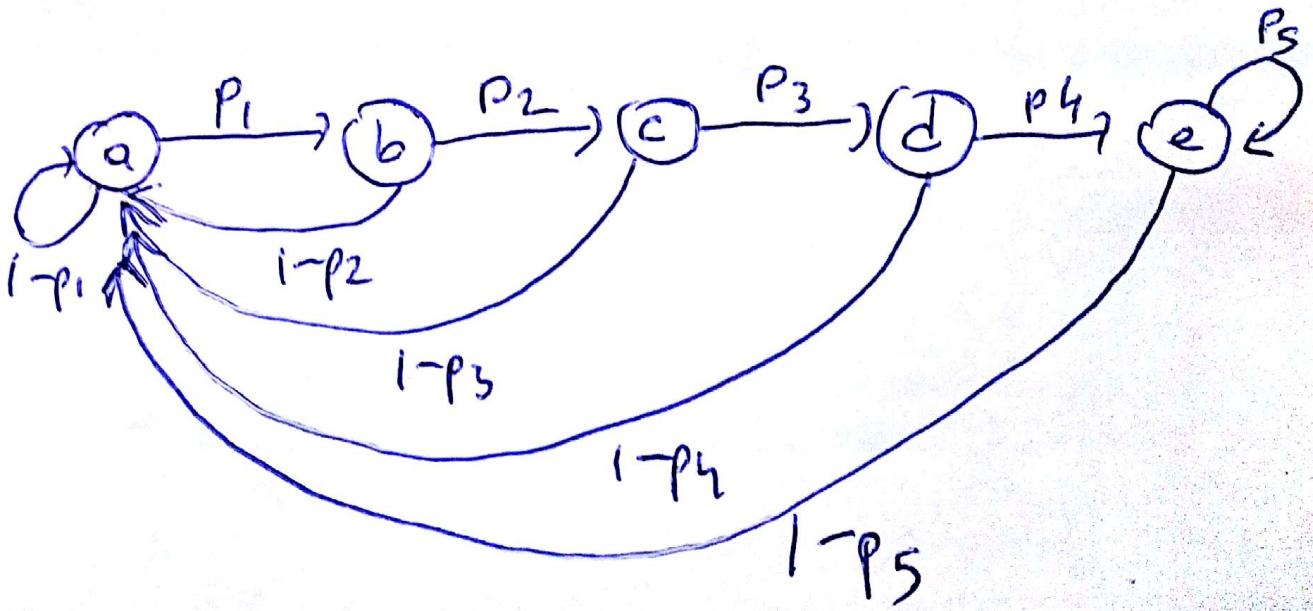
d $\xrightarrow{\times 1}$ a

e $\xrightarrow{\times 2}$ a

e $\xrightarrow{\times 3}$ e

those are the all observations from the series

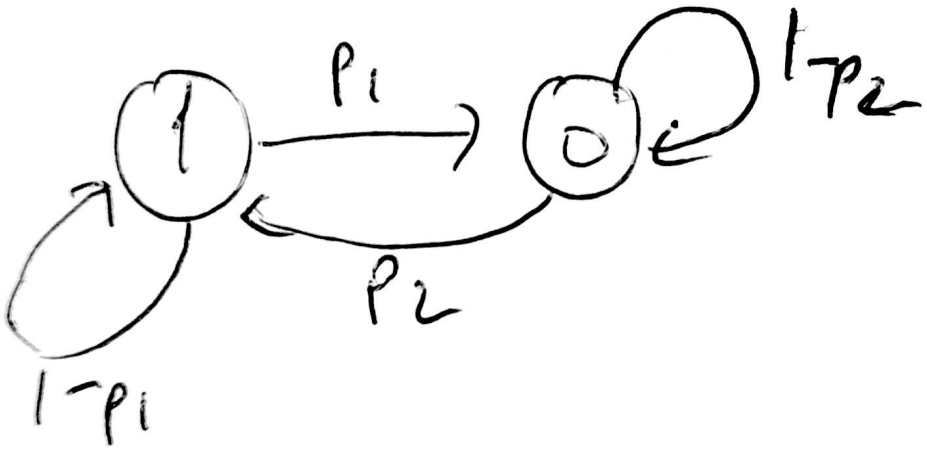
So,



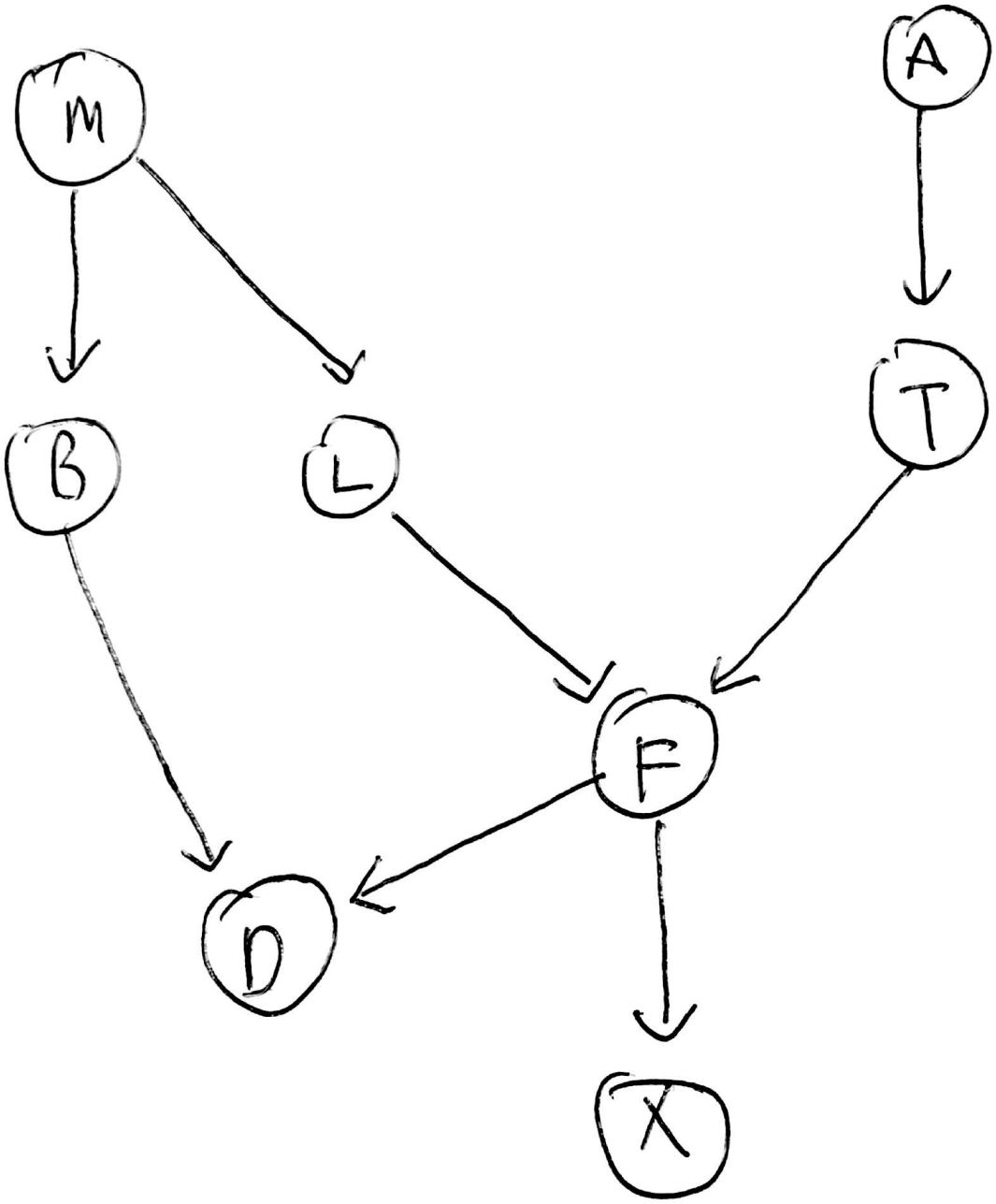
105

111000111|000 1111 0000 111 000 1111 0000 1111 000111

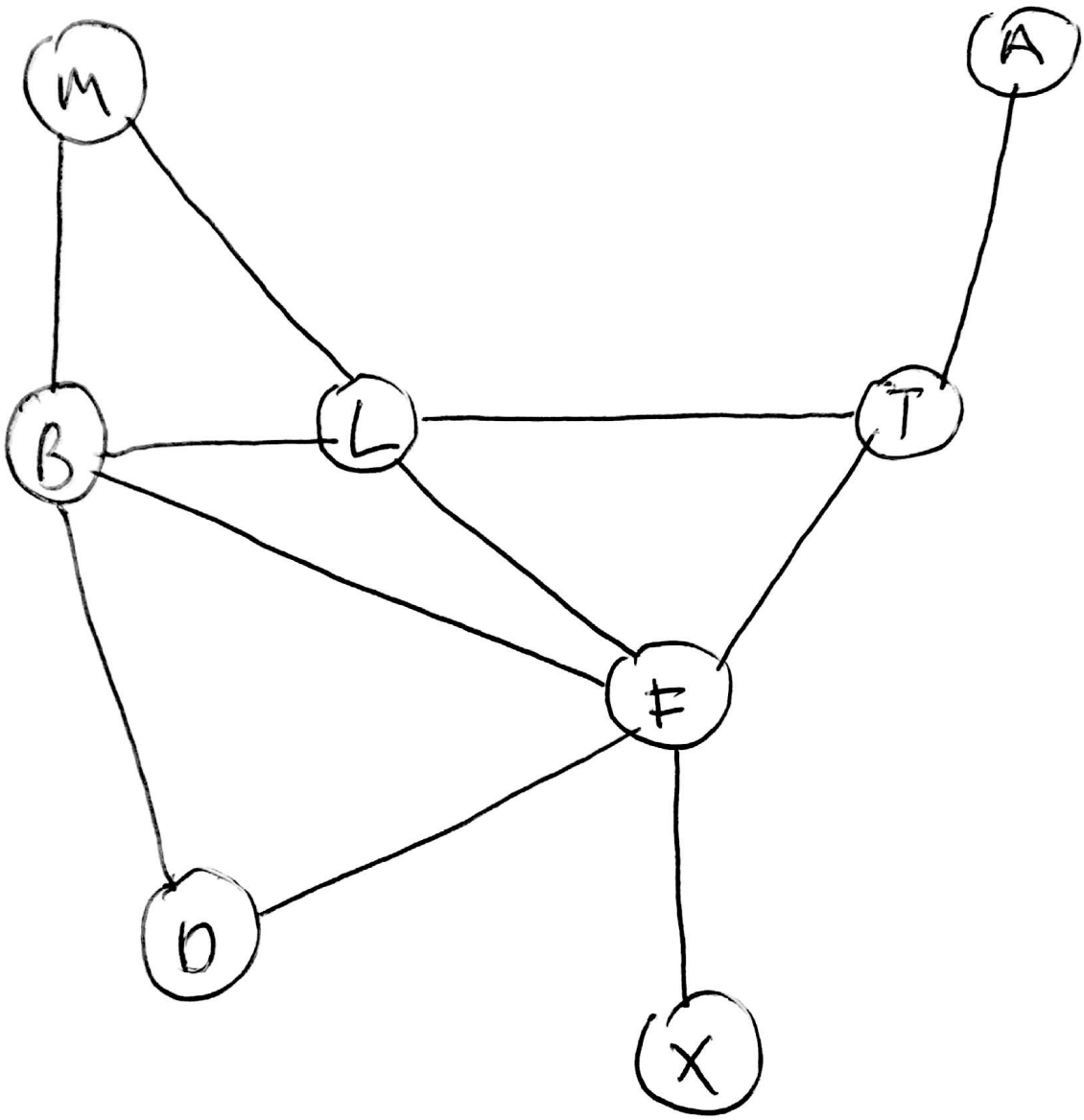
$x_t \in \{1, 0\}$



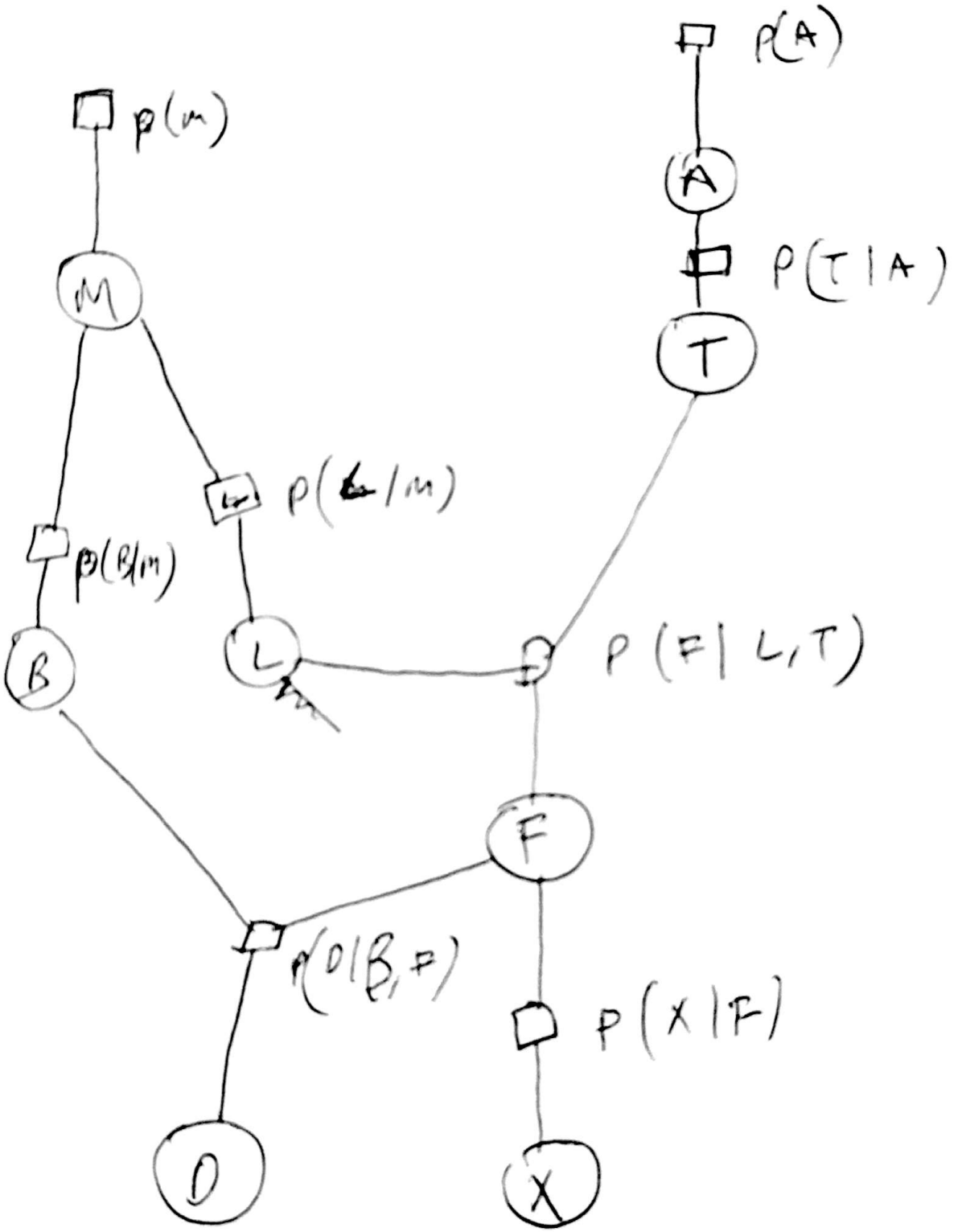
18.1 Directed



182 Undirected



18.2 Factorized



18.4

a)

ancestral graphs

moralize

(No parents)

disorient

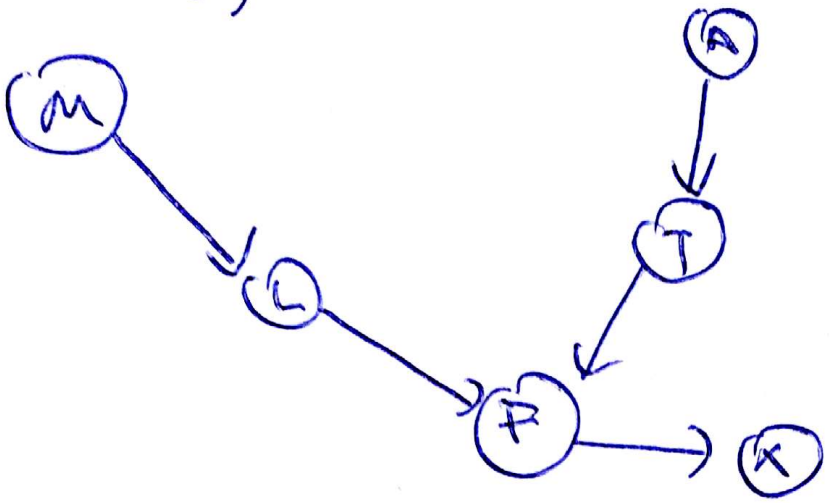
(no edges)

delete arrows

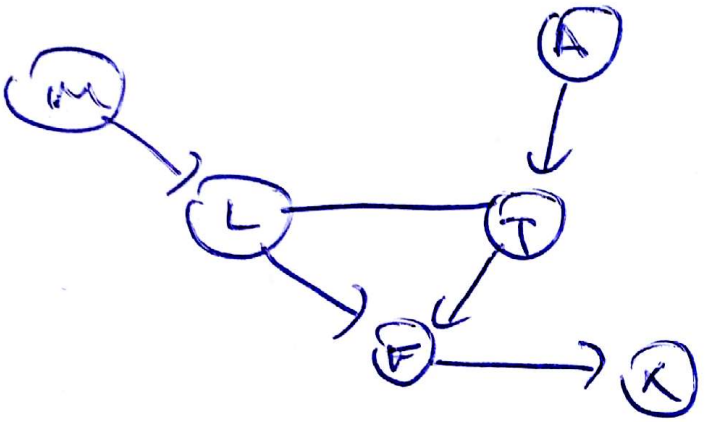
(no arrows)

Yes A, M are not connected, so they are unconditionally independent

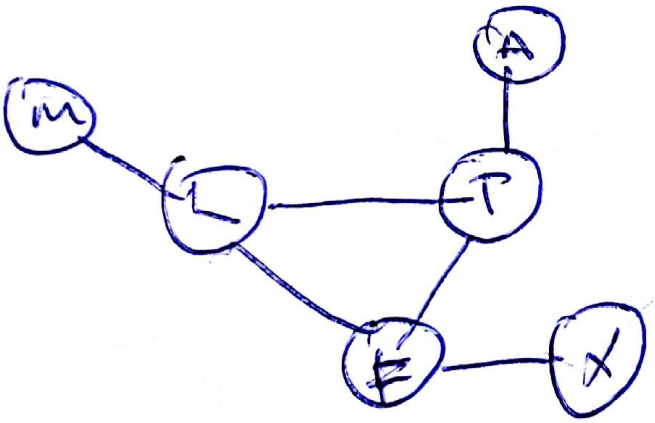
18.4 6)



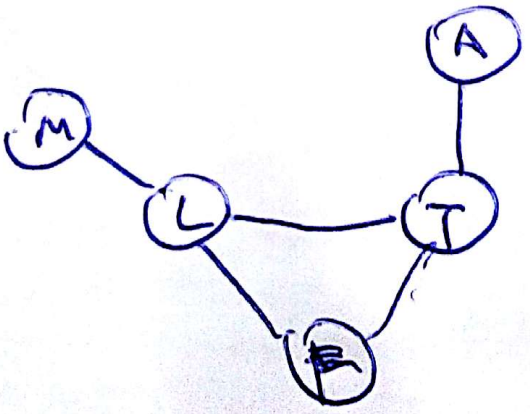
ancestral graph



moralize



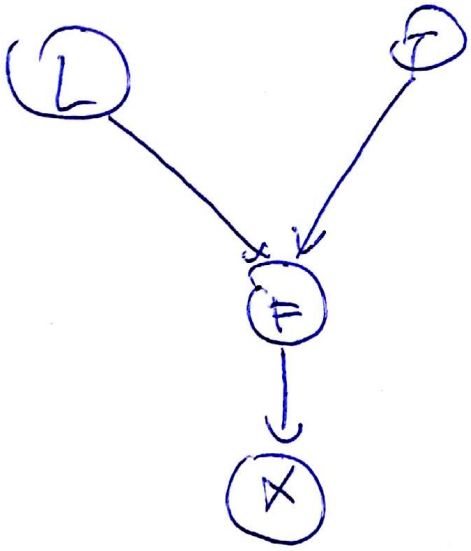
disorient



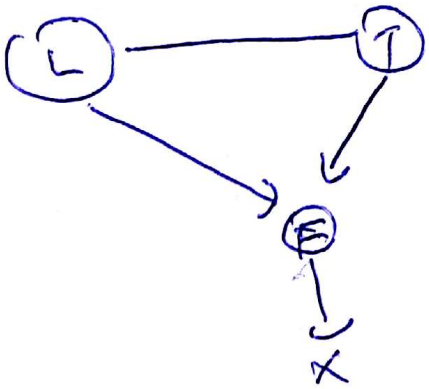
delete arcs

A and M are connected, so they are not conditionally independent

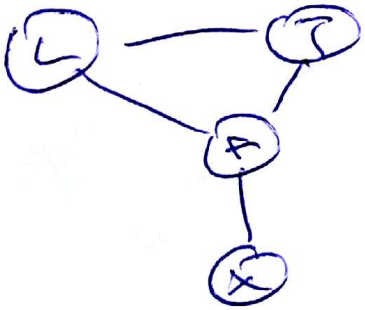
18.4 c)



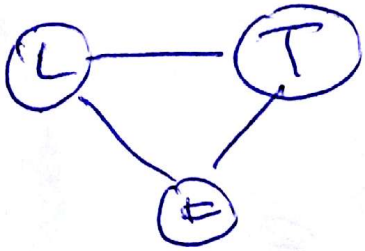
ancestral graph



moralize



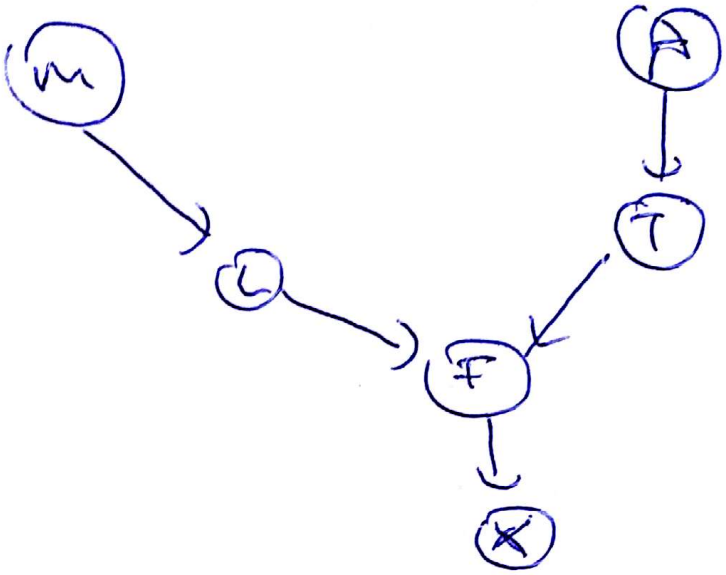
disorient



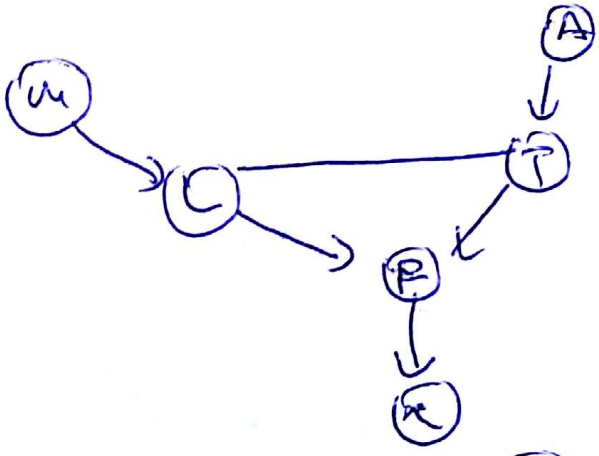
delete givens

L and T are connected, so they are not conditionally independent

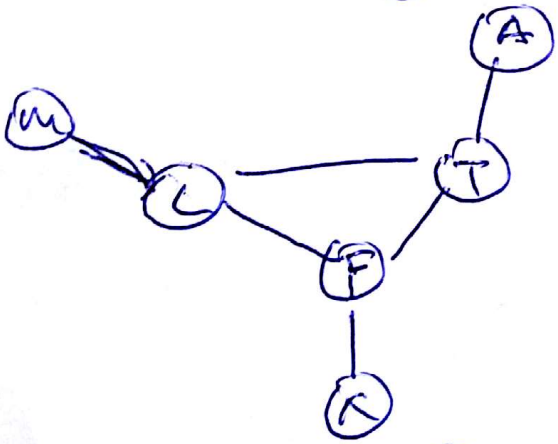
18.4 d)



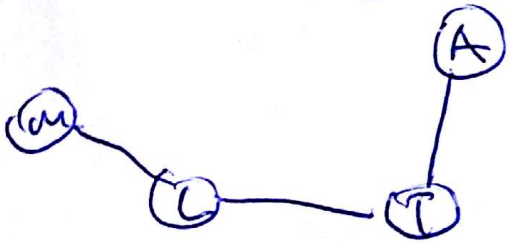
ancestral graph



moralize

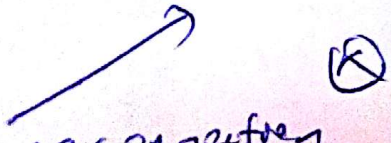


disorient

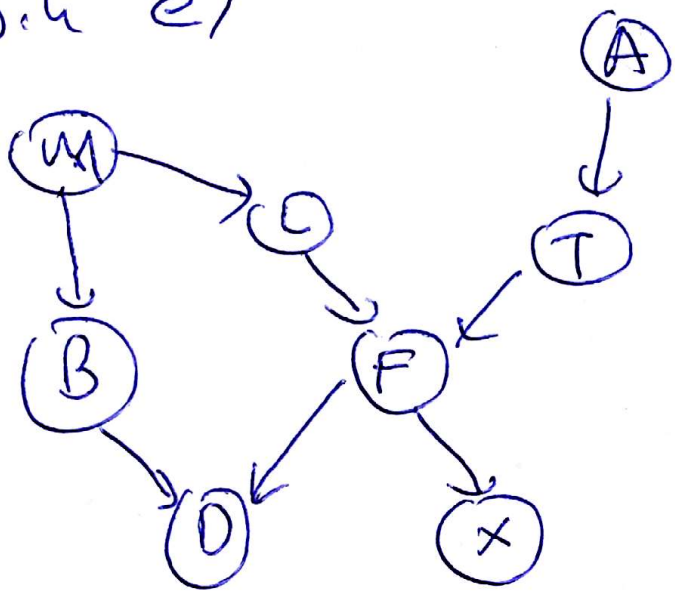


delete given

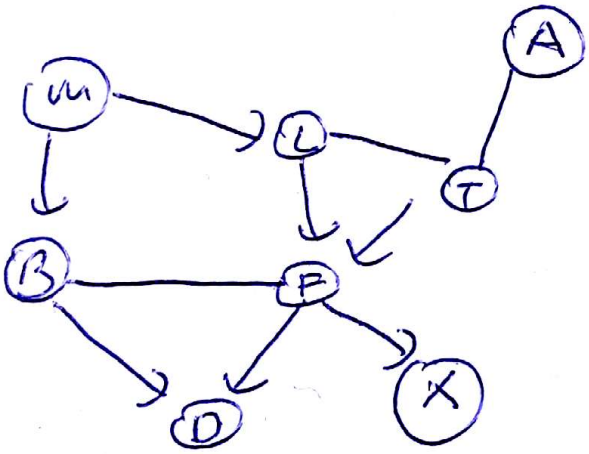
X and L are conditionally independent



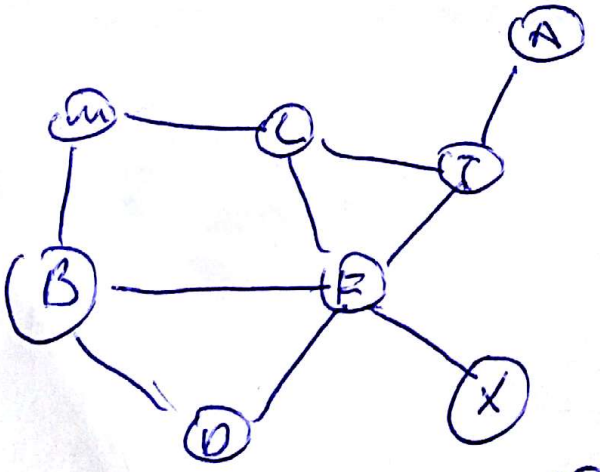
18.4 e)



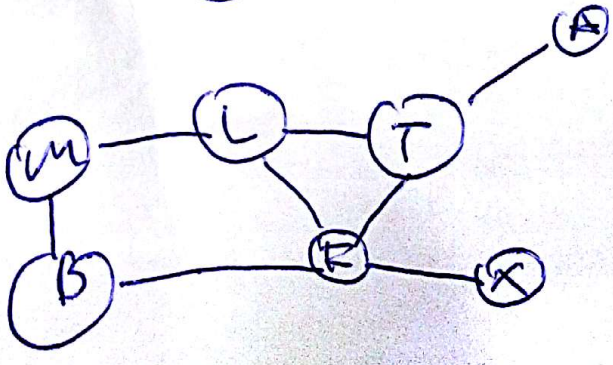
ancestral graph



moralize



Disorient



delete given

X and L are connected, so they are not conditionally independent