5.3 展开算法保持DFG中的延迟数目不变

即 $\lfloor \frac{W}{J} \rfloor + \lfloor \frac{W+1}{J} \rfloor + \dots + \lfloor \frac{W+J-1}{J} \rfloor = W$

证：记 $W = kJ + m$ （$0 < m < J$，$k \geq 0$ 整数）

当 $0 \leq i < J-m$ 时，$\lfloor \frac{W+i}{J} \rfloor = k$，$\sum_{i=0}^{J-m-1} = k(J-m)$

当 $J-m \leq i \leq J-1$ 时，$\lfloor \frac{W+i}{J} \rfloor = k+1$，$\sum_{i=J-m}^{J-1} = (k+1)m$

故 $\sum_{i=0}^{J-1} \lfloor \frac{W+i}{J} \rfloor = k(J-m) + (k+1)m = kJ + m = W$

得证：$\lfloor \frac{W}{J} \rfloor + \lfloor \frac{W+1}{J} \rfloor + \dots + \lfloor \frac{W+J-1}{J} \rfloor = W$

5.2

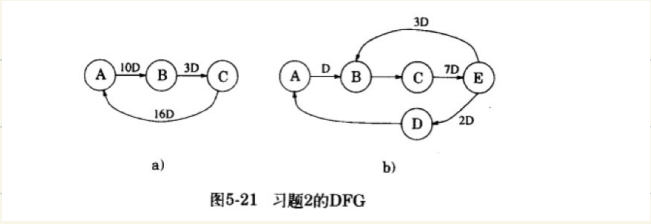
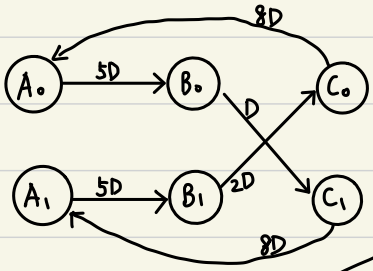
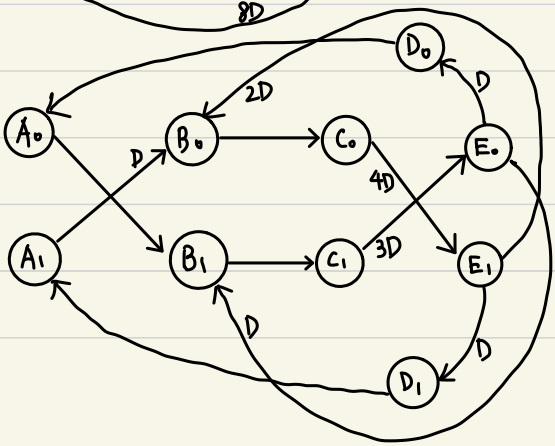


图5-21 习题2的DFG

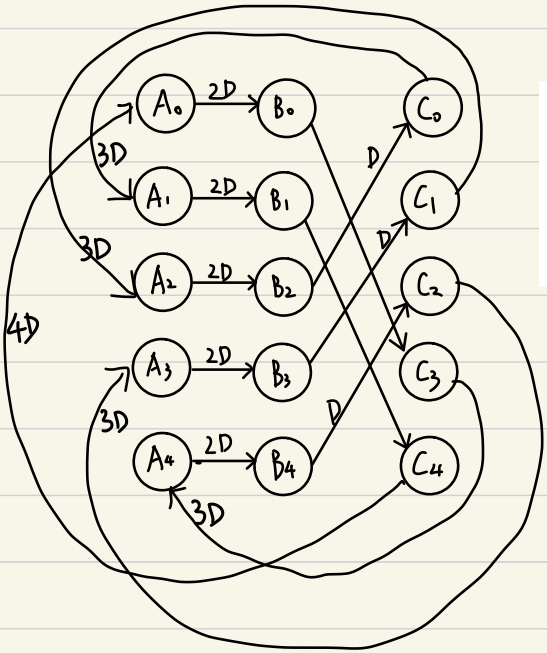
J=2 a)



b)



a)



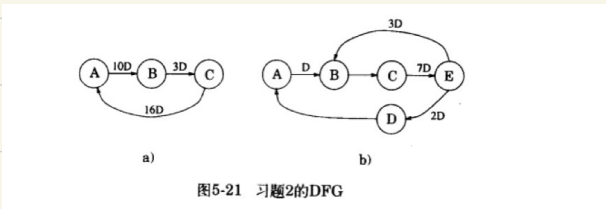
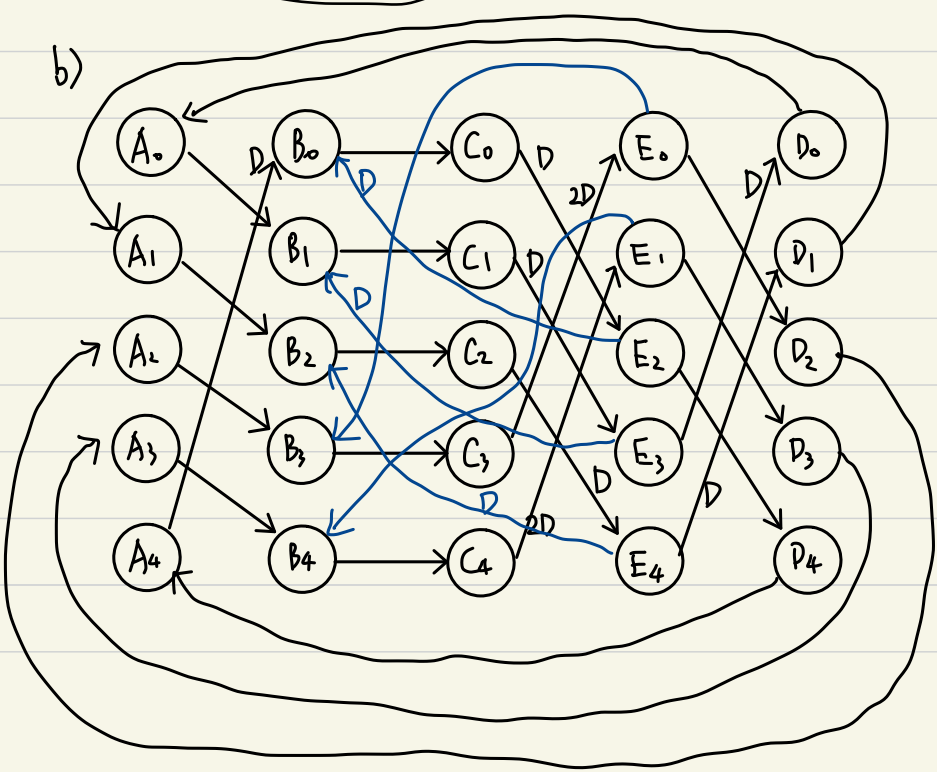


图5-21 习题2的DFG

$J = 5$

b)

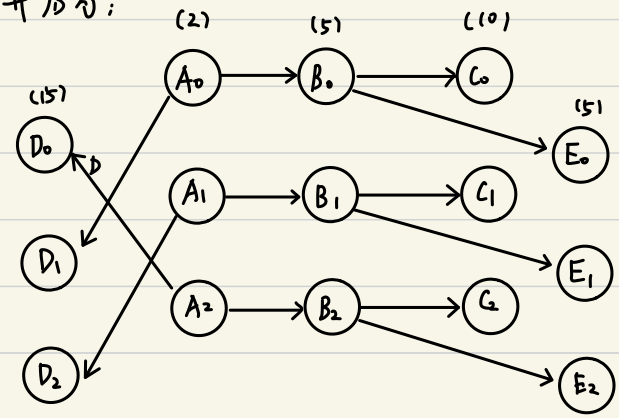


7. $T = 8$, $J = \lceil \frac{T_{crit}}{T} \rceil$, 迭代

$J = 2$, $T_{crit} = 17 > JT$

$J = 3$, $T_{crit} = 17 < JT$ 故所需最小展开系数为 3

展开后为：



关键路径 17 u.t. $< 8 \times 3 = 24$ u.t.