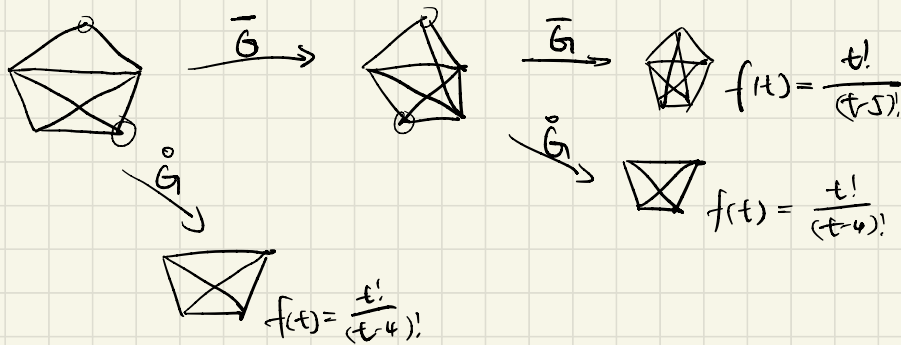


1.



$$\Rightarrow f(t) = \frac{t!}{(t-5)!} + \frac{t! \times 2}{(t-4)!}$$

$$= t(t-1)(t-2)(t-3)(t-4) + 2t(t-1)(t-2)(t-3)$$

$$= t(t-1)(t-2)^2(t-3)$$

2.

最大匹配: 10条边

最小覆盖: 19个点

3.

$$C = \begin{pmatrix} 5 & 4 & 2 & 3 \\ 3 & 1 & 4 & 3 \\ 1 & 1 & 1 & 2 \\ 5 & 3 & 6 & 3 \end{pmatrix} \begin{matrix} 5 \\ 4 \\ 3 \\ 6 \end{matrix}$$

0 0 0 0

$$\Rightarrow B = \begin{pmatrix} 0 & 1 & 3 & 2 \\ 1 & 3 & 0 & 1 \\ 2 & 2 & 2 & 0 \\ 1 & 3 & 0 & 3 \end{pmatrix} \begin{matrix} 5 \\ 4 \\ 3 \\ 6 \end{matrix}$$

0 0 0 0

$\delta = 1$

$$\Rightarrow \begin{pmatrix} 0 & 1 & 4 & 2 \\ 0 & 2 & 0 & 0 \\ 2 & 2 & 3 & 0 \\ 0 & 2 & 0 & 2 \end{pmatrix} \begin{matrix} 5 \\ 3 \\ 3 \\ 5 \end{matrix}$$

0 0 1 0

$\delta = 1$

$$\Rightarrow \begin{pmatrix} 0 & 0 & 4 & 2 \\ 0 & 1 & 0 & 0 \\ 2 & 1 & 3 & 0 \\ 0 & 1 & 0 & 2 \end{pmatrix} \begin{matrix} 4 \\ 2 \\ 2 \\ 4 \end{matrix}$$

1 0 2 1

$r = 4 \checkmark$

\Rightarrow 最大利润为 16