

$$\text{2. 1. } Q^d = 2000 - 10P, \quad n = 40$$

$$STC = g_1^2 + 80g + 300$$

$$(1) MC = 2g_1 + 80 = P$$

$$(2) Q = \frac{40}{2} g_1$$

$$AVC = g_1 + 80$$

$$= 40 \left(\frac{P}{2} - 40 \right)$$

$$g_1 = \frac{P}{2} - 40 \text{ \#}$$

$$= 20P - 1600 \text{ \#}$$

$$(3) 20P - 1600 = 2000 - 10P$$

$$(4) g_1 = \frac{P}{2} - 40$$

$$P^* = 120, \quad Q^* = 800 \text{ \#}$$

$$= \frac{120}{2} - 40 = 20 \text{ \#}$$

$$\pi = 120(20) - (20^2 - 80(20) + 300)$$

$$= 100 \text{ \#}$$