

EE 6222-2022-2023 - S1

3. (a)  $p(e_1|x) = 1 - p(w_1|x)$

(b)  $p(e_1|x) = 1 - p(w_1|x)$

to minimize  $p(e_1|x)$  is to maximize  $p(w_1|x)$

$$g_i(x) = p(w_i|x) = \frac{p(x|w_i)p(w_i)}{p(x)}$$

Since for all  $w_i$ ,  $p(x)$  is the same.

$$g_i(x) = p(x|w_i)p(w_i)$$

$$\text{decide } w_i = \arg \max_{w_i} p(x|w_i)p(w_i)$$

(c) X