1.1

$\theta_{1,1}^{(0)} = 0.3$

$\theta_{21}^{(0)} = 0.4$

$\beta_1^{(0)} = (1,0,0,0)$

$\beta_2^{(0)} = (0, 0.4, 0.3, 0.3)$

$$P(z=1 \mid A, d_1) = \frac{\beta_{1A}^{(0)} \theta_{1,1}^{(0)}}{\sum_{z'} \beta_{z'A}^{(0)} \theta_{1z'}^{(0)}} = \frac{1 \cdot 0.3}{1 \cdot 0.3 + 0 \cdot 0.7} = \boxed{1}$$

$$P(z=1 \mid B, d_1) = \frac{\beta_{1B}^{(0)} \theta_{1,1}^{(0)}}{\sum_{z'} \beta_{z'B}^{(0)} \theta_{1z'}^{(0)}} = \frac{0 \cdot 0.3}{0 \cdot 0.3 + 0.4 \cdot 0.7} = \boxed{0}$$

$$P(z=1 \mid C, d_1) = \frac{\beta_{1C}^{(0)} \theta_{1,1}^{(0)}}{\sum_{z'} \beta_{z'C}^{(0)} \theta_{1z'}^{(0)}} = \frac{0 \cdot 0.3}{0 \cdot 0.3 + 0.3 \cdot 0.7} = \boxed{0}$$

$$P(z=1 \mid D, d_1) = \frac{\beta_{1D}^{(0)} \theta_{1,1}^{(0)}}{\sum_{z'} \beta_{z'D}^{(0)} \theta_{1z'}^{(0)}} = \frac{0 \cdot 0.3}{0 \cdot 0.3 + 0.3 \cdot 0.7} = \boxed{0}$$

1.2

$$\beta_{1A}^{(1)} = \frac{\sum_d P(z=1|A,d)\,c(A,d)}{\sum_{w'd} P(z=1|w',d)\,c(w',d)} = \frac{1\cdot 4 + 1\cdot 2}{1\cdot 4 + 1\cdot 2 + 0+0+0+0+0+0} = \boxed{1}$$

$$\beta_{1B}^{(1)} = \frac{\sum_d P(z=1|B,d)\,c(B,d)}{\sum_{w'd} P(z=1|w',d)\,c(w',d)} = \frac{0\cdot 3 + 0\cdot 2}{1\cdot 4 + 1\cdot 2 + 0+0+0+0+0+0} = \boxed{0}$$

$$\theta_{11}^{(1)} = \frac{\sum_w P(z=1|w,d_1)\,c(w,d_1)}{N_{d_1}} = \frac{1\cdot 4 + 0\cdot 3 + 0\cdot 2 + 0\cdot 1}{10} = \boxed{0.4}$$

$$\theta_{12}^{(1)} = \frac{\sum_w P(z=2|w,d_1)\,c(w,d_1)}{N_{d_1}} = \frac{0\cdot 4 + 1\cdot 3 + 1\cdot 2 + 1\cdot 1}{10} = \boxed{0.6}$$