1. FF

2. D

3. BC

4. ABD

5. D

6. D

7.

(a) $w_0 = \dfrac{\sum_{i=1}^{3} y_i}{3} = \dfrac{(1) + (-1) + (1)}{3} = \dfrac{1}{3}$.

(b) $w_1 = (\boldsymbol{x}^T \boldsymbol{x})^{-1} \boldsymbol{x}^T \boldsymbol{y} = \dfrac{\sum_{i=1}^{3} x_i y_i}{\sum_{i=1}^{3} x_i^2} = \dfrac{(-1) \cdot (1) + (0) \cdot (-1) + (2) \cdot (1)}{(-1)^2 + (0)^2 + (2)^2} = \dfrac{1}{5}$.

8.

$$P(U=0 \mid x=0, y=1, z=0) = P(U=0) \frac{P(x=0 \mid u=0) P(y=1 \mid u=0) P(z=0 \mid u=0)}{P(x=0) P(y=1) P(z=0)}$$

$$= \frac{\frac{3}{7} \cdot \frac{2}{3} \cdot \frac{1}{3} \cdot \frac{1}{3}}{\frac{4}{7} \cdot \frac{3}{7} \cdot \frac{4}{7}} = \frac{49}{216}$$