Assignment - 3

Q2.) b_1 = 4w 6b

b_2 = 4w 3b

$p(b_1) = 1/2$ $\quad p(b_2) = 1/2$

$p(a/b_1) = 6/10$ $\quad p(a/b_2) = 3/7$

$$p(b_1/a) = \frac{p(b_1)\, p(a/b_1)}{p(b_1)\, p(a/b_1) + p(b_2)\, p(a/b_2)}$$

$$= \frac{1/2 \times 6/10}{1/2 \times 6/10 + 1/2 \times 3/7} = 7/12$$

Q3.) $p(b_1) = 1/6$ $\quad p(b_2) = 1 - 1/6 = 5/6$

$p(a/b_1) = 2/3$ $\quad p(a/b_2) = 1 - 2/3 = 1/3$

$$p(b_1/a) = \frac{p(b_1)\, p(a/b_1)}{p(b_1)\, p(a/b_1) + p(b_2)\, p(a/b_2)}$$

$$= 2/7$$