② a)

V	$P(A=1 \mid V)$	$P(K=1 \mid V)$	$P(L=1 \mid V)$	prior $P(V)$
0	$\frac{2}{6}$	$\frac{3}{6}$	$\frac{2}{6}$	$\frac{1}{2}$
1	$\frac{4}{6}$	$\frac{5}{6}$	$\frac{2}{6}$	$\frac{1}{2}$

b) $P(V=1 \mid A=0, K=1, L=0)$

$$= \frac{P(V=1, A=0, K=1, L=0)}{P(A=0, K=1, L=0)}$$

$$= \frac{P(V=1)\,P(A=0, K=1, L=0 \mid V=1)}{P(A=0, K=1, L=0)}$$

$$= \frac{P(V=1)\,P(A=0 \mid V=1)\,P(K=1 \mid V=1)\,P(L=0 \mid V=1)}{P(A=0, K=1, L=0)}$$

$$= \frac{\frac{1}{2}\left(1-\frac{4}{6}\right)\frac{5}{6}\left(1-\frac{2}{6}\right)}{P(A=0, K=1, L=0)} = \frac{\frac{5}{54}}{P(A=0, K=1, L=0)}$$

Similarly $P(V=0 \mid A=0, K=1, L=0) = \frac{P(V=0)\,P(A=0 \mid V=0)\,P(K=1 \mid V=0)\cdot P(L=0 \mid V=0)}{P(A=0, K=1, L=0)}$

$$= \frac{\frac{1}{9}}{P(A=0, K=1, L=0)}$$

$$\frac{P(V=1 \mid A=0, K=1, L=0)}{P(V=0 \mid A=0, K=1, L=0)} = \frac{5}{54} \cdot 9 = \frac{45}{54} < 1 \Rightarrow \underline{\text{cannot}} \text{ say if has virus}$$