Question 2

a.

$$\alpha\big((x,v)\to(v,x)\big)=\min\left(1,\frac{\pi(v)q(x|v)}{\pi(x)q(v|x)}\right)$$

b.

$$\bar{\pi}(x,v)K_2\big((x,v')\big|(x,v)\big)=\bar{\pi}(x,v')K_2\big((x,v)\big|(x,v')\big)$$
$$\bar{\pi}(x,v)K_2\big((x,v')\big|(x,v)\big)=\pi(x)q(v|x)*q(v'|x)$$
$$\bar{\pi}(x,v)K_2\big((x,v')\big|(x,v)\big)=\pi(x)q(v'|x)*q(v|x)$$
$$\bar{\pi}(x,v)K_2\big((x,v')\big|(x,v)\big)=\bar{\pi}(x,v')K_2\big((x,v)\big|(x,v')\big)$$