$$u_1(t) = \sin(2\pi t)$$
$$u_2(t) = \tfrac{1}{2}\sqrt{2}\sin\left(2\pi t - \tfrac{1}{6}\pi\right)$$
$$u_2(t) = \tfrac{1}{2}\sin\left(2\pi t + \tfrac{1}{6}\pi\right)$$

(1)