Problem 1. Calculate the following tensor product

\[(\mathbb{Z}/2\mathbb{Z} \oplus \mathbb{Z}/6\mathbb{Z} \oplus \mathbb{Z}/25\mathbb{Z}) \otimes_{\mathbb{Z}} (\mathbb{Z}/15\mathbb{Z} \oplus \mathbb{Q})\]

Is it a cyclic \(\mathbb{Z}\)-module?
Problem 2. Find all (up to reordering of the blocks) possible Rational Normal Forms and Jordan Normal Forms of a linear transformation with characteristic polynomial \((x-1)^3(x+2)\).