Q2: Clearly we have that C_{15} and $\langle e \rangle$ are both subgroups of C_{15}. By Lagrange's theorem, we have that any subgroup of C_{15} must have order of 3 or 5. Taking

$$H_1 = \langle 3 \rangle = \{0, 3, 6, 9, 12\}$$

and

$$H_2 = \langle 5 \rangle = \{0, 5, 10\}$$

We claim that these are the only subgroups of order 5 and 3 respectively. Note that since C_{15} is cyclic, every subgroup of it can be generated by 1 element. From A1Q4ii, we know that every nonidentity element of C_{15} which is coprime to 15 is a generator of C_{15}. Therefore the elements $3, 5, 6, 9, 10, 12$ do not generate C_{15}. We can verify through simple computation that

$$\begin{aligned}
\langle 3 \rangle &= H_1 \\
\langle 5 \rangle &= H_2 \\
\langle 6 \rangle &= \{6, 12, 3, 9, 0\} = H_1 \\
\langle 9 \rangle &= \{9, 3, 12, 6, 0\} = H_1 \\
\langle 10 \rangle &= \{10, 5, 0\} = H_2 \\
\langle 12 \rangle &= \{12, 9, 6, 3, 0\} = H_1
\end{aligned}$$

We see that the only subgroups which are not $\{e\}$ and C_{15} are H_1, H_2.