MA8107 OPERATOR ALGEBRA EXERCISES 3

EXERCISE 1: Remember that if A is a unital C^*-algebra and B is a C^*-subalgebra of A such that $1_A \in B$, then $\sigma_B(b) = \sigma_A(b)$ for all $b \in B$.

Show that if A is an arbitrary C^*-algebra (with or without unit) and B is a C^*-subalgebra of A, then $\sigma_B(b) \cup \{0\} = \sigma_A(b) \cup \{0\}$ for all $b \in B$.

The following exercises are also worth looking at: 2,3,4,5,6,9 from chapter 2 of [Murphy] and 1 and 4 from chapter 3 of [Murphy].