

MATE 6540 assignment 2

5. A family $(A_i)_{i \in I}$ of subsets of a topological space X is said to be locally finite if for each $x \in X$ there is a neighbourhood V of x such that $V \cap A_i = \emptyset$ for all but a finite number of indices $i \in I$. Show that the union of a locally finite family of closed subsets of X is closed in X .
6. Exercise 2 of Chapter II p. 130 in Dixmier.
7. Exercise 1 of Chapter III p. 130 in Dixmier.
8. Exercise 5 of Chapter III in Dixmier.
9. Exercise 7 of Chapter III in Dixmier.

Marks: 6 + 9 + 12 + 6 + 10