27. Exercise 5 of Chapter IV p. 131 of Dixmier.

28. (See exercise 14 c). For the given X and A,

    a) Find an element of $\mathcal{F}$ not containing any of $V_1, V_2, \ldots$ where

    $$V_i = \bigcup_{j \geq 1}(j - 1/i, j + 1/i)$$

    b) Same question, with

    $$V_i = \bigcup_{j \geq 1}(j - 1/(i + j), j + 1/(i + j))$$

    c) Same question, for an arbitrary sequence $V_1, V_2, \ldots$

29. Let X be a locally compact space. If $f : X \to Y$ is continuous, is the space $f(X)$ necessarily locally compact? What if f is both continuous and open? Justify your answer.

30. Exercise 1 of Chapter X, p. 135 of Dixmier.