

2. (a) (3 marks) Let \mathcal{F} be a collection of subsets of a set Ω . Provide the three necessary conditions for \mathcal{F} to be an *algebra*.

Solution: Bookwork.

- $A \in \mathcal{F} \Rightarrow A^c \in \mathcal{F};$
- $A, B \in \mathcal{F} \Rightarrow A \cup B \in \mathcal{F};$ and
- $\Omega \in \mathcal{F}.$