You are given seven different programs $A, C, E, G, I, K, M$, each meant to carry out the same task, where programs $C, G, K, M$ are written in Python and programs $A, E, I$ are written in Java.

1. Suppose that programs $C, A, E, I, M$ are correct and programs $G, K$ are incorrect. For each statement below, say whether the statement is true or false, and give the smallest number of programs that must be tested to verify your claim. Justify each answer.

   (a) All Python programs are correct.

   (b) Some correct program is written in Java.

   (c) Every Java program is correct.

   (d) Only programs written in Python are incorrect.
2. Let $P$ represent the set of all programs (our “universe” or “domain”), $J$ represent the set of all Java programs, and $T$ represent the set of all correct programs.

For each statement in the previous question, draw one Venn diagram representing a situation when the statement is true, and another Venn diagram representing a situation when the statement is false—for this question, ignore all assumptions about the correctness of the programs.