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Chapter :1

Section : 2

36. Four friends have been identified as suspects for an unauthorized
access into a computer system. They have made
statements to the investigating authorities. Alice said
"Carlos did it." John said "I did not do it." Carlos said
"Diana did it." Diana said "Carlos lied when he said that
I did it."
a) If the authorities also know that exactly one of the
four suspects is telling the truth, who did it? Explain
your reasoning.
b) If the authorities also know that exactly one is lying,
who did it? Explain your reasoning.

Solution:

Part A

1

Carlos and Diana cannot be both lying. If Carlos is lying, then Diana is telling the truth and if Carlos is telling the truth, then
Diana is lying. It is either Carlos or Diana who is telling the truth.
John is lying, and John said "I did not do it"
Therefore John had the unauthorized access.

Part B

2
Carlos and Diana can not be both be telling the truth, so the liar is either Carlos or Diana. This means that
Alice is telling the truth. Alice said: "Carlos did it" Therefore it was Carlos who had the unauthorized
access.