RAM Maths Circle

Date: February 10, 2024

Swami Vivekanand School, Dombivli

1. Alice, Bob and Charlie are one of each type: a truth-teller (always tells truth), a liar (always lies) and a spy (can lie or tell the truth). Alice says she is not a truth-teller; Bob says he is not a spy; and Charlie says he is not a liar. What type is Charlie?

2. A party has 100 people who are either liars or truth tellers. Liars always lie, and truth tellers always speak the truth. After the party is over, you ask each person, "How many truth tellers did you shake hands with?" Each person gave a different answer, ranging from 0 to 99 (the answers were 0, 1, 2... 98, 99). How many liars were at the party?

3. Cheryl's birthday is one of 10 possible dates. May 15, May 16, May 19 June 17, June 18 July 14, July 16 August 14, August 15, August 17 Cheryl tells the month to Albert and the day to Bernard. Albert says, "I don't know the birthday, but I know Bernard doesn't know either." Bernard then says, "I didn't know at first, but now I do know." Albert then says, "Now I also know Cheryl's birthday." When is Cheryl's birthday?