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Chapter No: 1

Section No: 2

Problem No: 5

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Ques: Translate the given statement into propositional logic using the propositions provided.

You are eligible to be President of the U.S.A. only if you are at least 35 years old, were born in the U.S.A, or at the time of your birth both of your parents were citizens, and you have lived at least 14 years in the country. Express your answer in terms of e: "You are eligible to be President of the U.S.A.," a: "You are at least 35 years old," b: "You were born in the U.S.A.," p: "At the time of your birth, both of your parents were citizens," and r: "You have lived at least 14 years in the U.S.A."

Ans:

The question states 3 conditions of eligibility to be the President of the U.S.A. and if all of them are fulfilled, one can be the president. However, the 2nd condition of being born in the U.S.A. has an alternative, that is the parents being citizens at the time of the child's birth.

So, the required propositional logic is $e \rightarrow a \wedge (b \vee p) \wedge r$