

# **CSE 103: DISCRETE MATHEMATICS**

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**STUDENT ID: 1705072**

**CHAP NO: 01**

**SECTION NO: 2**

**EXERCISE NO: 15**

**VERIFICATION STD ID: 1705018**

**ASSIGNED TO: PROF. DR. M. KAYKOBAD**

**DATE ASSIGNED:**

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**SECTION: B**

## LEVEL-1, TERM-2

**QUESTION:** Each inhabitant of a remote village always tells the truth or always lies. A villager will give only a “Yes” or a “No” response to a question a tourist asks. Suppose you are a tourist visiting this area and come to a fork in the road. One branch leads to the ruins you want to visit; the other branch leads deep into the jungle. A villager is standing at the fork in the road. What one question can you ask the villager to determine which branch to take?

*THE QUESTION THAT I CAN ASK IS “IF I ASK YOU IF THIS IS THE ROAD TO THE RUINS, THEN WILL YOU ANSWER ME IN YES?”*

**WE WILL PICK THE ROAD THAT THE VILLAGER REFERS!**

**SCENERIO 01:** If I really picked the road to the ruins and the villager tells the truth, then the villager will reply me “YES”. But if I picked up the wrong road, then the villager will reply me in “NO”. So, that’s how I will get to the ruins.

**SCENERIO 02:** If I really picked the road to the ruins and the villager tell lie, then the man would have replied me “NO”. But the man consistently tell lie, so the villager have to reply me the opposite of what he would have replied and so the villager will reply me in “YES”. But if I picked up the wrong road, then the man would have replied me in “YES”. But as the villager consistently tell lie and so the villager will reply me in “NO” So, that’s how I will get to the ruins.

**THAT’S HOW THE MAN WILL ULTIMATELY SHOW ME THE WAY OF RUINS!**