

# Probability and Random Variables Assingment-1

Nimai Parsa  
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## 1 10.15.1

*Question 2 :*

Which of the following is equally likely. Explain.

- 1) A driver attempts to start a car. The car starts or does not start.
- 2) A player attempts to shoot a basketball. She/he shoots or misses the shot.
- 3) A trial is made to answer a true-false question. The answer is right or wrong.
- 4) A baby is born. It is a boy or a girl.

*Solution :*

- 1) The outcome whether the car starts or not depends on the condition of the car. Therefore, the outcomes are not equally likely.
- 2) The outcome whether the player makes or misses the shot depends on the skill of the player. Therefore, the outcomes are not equally likely.
- 3) • *case 1* : If the trial is made without any knowledge of the question, then outcomes of the trial are equally likely.  
• *case 2* : Otherwise, the outcomes of the trial are biased.
- 4) The baby being a boy or a girl is a biologically random event. Therefore, the outcomes are equally likely.