83. Which one is not a requirement of a binomial distribution?

1. There are 2 outcomes for each trial
2. There is a fixed number of trials
3. The outcomes must be dependent on each other
4. The probability of success must be the same for all the trials

Solution:

1. This is a requirement of a binomial distribution. In a binomial distribution, each trial has only two possible outcomes, often referred to as "success" and "failure."
2. This is also a requirement of a binomial distribution. You need to have a predetermined, fixed number of trials or experiments. For example, you might flip a coin 10 times or conduct 20 medical tests.
3. This would imply that the probability of success in one trial depends on the outcomes of previous trials. However, this contradicts the definition of a binomial distribution, which assumes independence between trials.So, there is no direct mathematical expression for this requirement in the context of a binomial distribution.
4. This is a requirement of a binomial distribution. In a binomial distribution, the probability of success (P) must remain constant across all trials. This means that the probability of success for each individual trial is the same, regardless of previous outcomes.

So, third option is the one that is not a requirement of a binomial distribution because it contradicts the assumption of independence between trials, which is a key characteristic of the binomial distribution.