

Assignment NCERT EXAMPLER

Probability And Random Processes

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EE22BTECH11040

I. QUESTION 10.13.2.8

When we toss a coin, there are two possible outcomes - Head or Tail. Therefore, the probability of each outcome is $1/2$. Justify your answer.

Solution: When a toss is coined possible outcomes are: H and T

So,

Total number of possible outcomes = 2

Since,

$$p_X(E) = \frac{\text{no of favourable outcomes}}{\text{total possible outcomes}} \quad (1)$$

So,

$$p_X(H) = 1/2 \quad (2)$$

$$p_X(T) = 1/2 \quad (3)$$

When you have a fair coin (assuming no bias or cheating), each side (Head and Tail) is equally likely to come up. Since there are only two possible outcomes and they are equally likely, the probability of each outcome is $1/2$.