Assignment 1
AI1110: Probability and Random Variables
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Chapter 13 , Exercise 13.2

Question 17 : The Probability of obtaining an even prime number on each die , when a pair of dice is rolled is :

(A) 0

(B) $\dfrac{1}{3}$

(C) $\dfrac{1}{12}$

(D) $\dfrac{1}{36}$

Solution:

When a pair of dice is rolled The sample space is $\mathbb{S} = \{(x,y) : x, y \in \{1,2,3,4,5,6\}\} \therefore n(\mathbb{S}) = 6 \times 6 = 36$.

Let Event E : an even prime number on each die . Since 2 is the only even prime number , E = $\{(2,2)\}$

$\therefore n(\mathrm{E}) = 1$

Required Probability = P(E) = $\dfrac{1}{36}$

(D) is the correct option.