# 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) $\frac{1}{3}$

C) $\frac{1}{12}$

D) $\frac{1}{36}$

**Solution:**

When a pair of dice is rolled The sample space is :

$$\mathbb{S} = \{(x, y) : x, y \in \{1, 2, 3, 4, 5, 6\}\} \tag{1}$$

$$\therefore n(\mathbb{S}) = 6 \text{ x } 6 = 36. \tag{2}$$

Let Event E : an even prime number on each die . Since 2 is the only even prime number ,

$$\text{E} = \{(2, 2)\} \tag{3}$$

$$\therefore n(\text{E}) = 1 \tag{4}$$

$$\text{Required Probability} = \Pr(E) = \frac{1}{36} \tag{5}$$

(D) is the correct option.