AI1103 - Assignment 2

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Download all python codes from

https://github.com/Vojeswitha05/Probability_AI1103/blob/main/Assignment_3/simulation_3.py

and latex-tikz codes from

https://github.com/Vojeswitha05/Probability_AI1103/blob/main/Assignment_3/latex_3.tex

GATE 1996(CS),Q.5

Two dice are thrown simultaneously. The probability that at least one of them will have 6 facing up is

A) 1/36
B) 1/3
C) 25/36
D) 11/36

SOLUTION

Number of dices	$n = 2$
The total no. of outcomes	36
Probability of 6 facing-up	$p = 1/6$
Probability of 6 'NOT' facing-up	$q = 5/6$
Number of sixes in the outcome	X

Probability of at least one six facing up

$$= Pr(X = 1) + Pr(X = 2) \tag{0.0.1}$$
$$= {}^2C_1 pq + {}^2C_2 p^2 q^0 \tag{0.0.2}$$
$$= {}^2C_1 \left(\frac{1}{6}\right)\left(\frac{5}{6}\right) + {}^2C_2 \left(\frac{1}{6}\right)^2 \tag{0.0.3}$$
$$= 2\left(\frac{5}{36}\right) + \frac{1}{36} \tag{0.0.4}$$
$$= \frac{11}{36} \tag{0.0.5}$$