Assignment

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AI21MTECH02003

I. GATE EC 8

Problem: Consider a dice with the property that the probability of a face with n dots showing up is proportional to n. The probability of the face with three dots showing up is ?

Solution: Given that the dice with the property that the probability of a face with n dots showing up is proportional to n , let the proportionality constant be 'c , then tabulating :
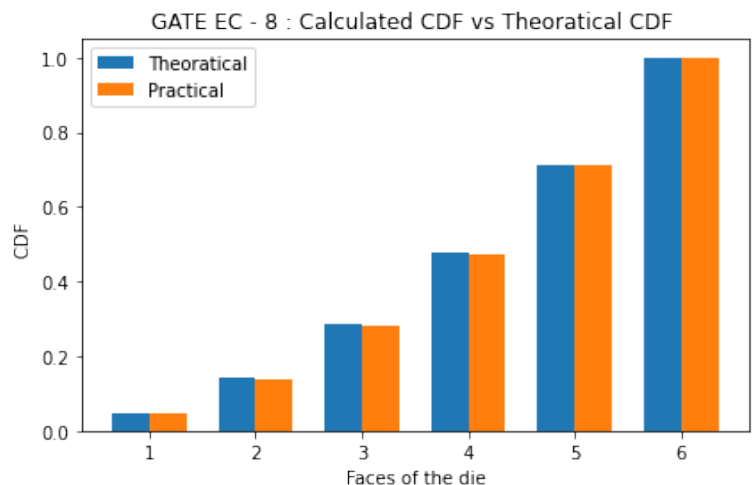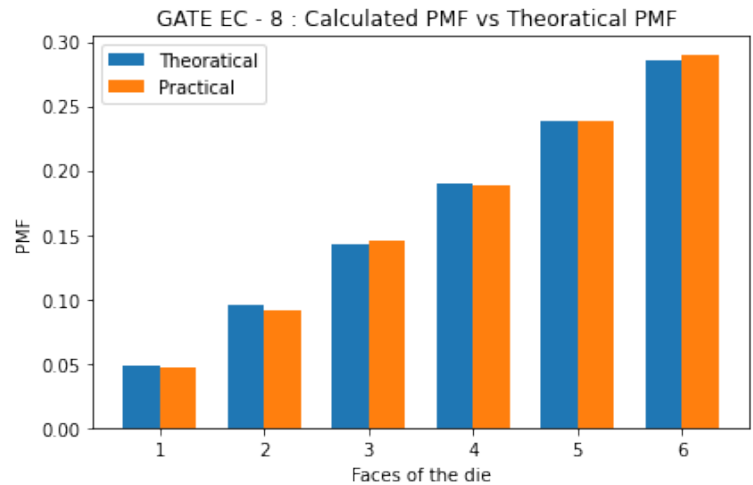
X	1	2	3	4	5	6
Pr(X)	c	2c	3c	4c	5c	6c

As the sum of all probability is equal to 1

$$\Sigma Pr(X) = 1$$
$$c + 2c + 3c + 4c + 5c + 6c = 1$$
$$21c = 1$$
$$c = \frac{1}{21}$$

The probability of three dots showing up is 3c

Giving the probability to be:

$$= 3 \times c$$
$$= 3 \times \frac{1}{21}$$
$$= \frac{3}{21}$$
$$= \frac{1}{7}$$
$$= 0.1428$$

GATE EC - 8 : Calculated PMF vs Theoratical PMF

GATE EC - 8 : Calculated CDF vs Theoratical CDF

Code source: https://github.com/harshal9876/AI5002/blob/main/Assignment_9/Codes/Assignment_9.py
LaTex code : https://github.com/harshal9876/AI5002/blob/main/Assignment_9/Assignment_9.tex