Assignment 5

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***Abstract*—This document contains a problem from Q.3 of CBSE Class 11 Chapter 16 (Probability) Exercise 16.3.**

Problem 1. ***Exercise 16.3, Q3.*** *A die is thrown, find the probability of following events: a state assembly elections:*

1) *A prime number will appear*
2) *A number greater than or equal to 3 will appear*
3) *A number less than or equal to one will appear*
4) *A number more than 6 will appear,*
5) *A number less than 6 will appear.*

Solution: DLet's denote the outcome of the experiment by a random variable $X \in \{0, 1, 2, 3, 4\}$, where $X = 0$ denotes occurrence of prime number, $X = 1$ denotes occurrence of number greater than equal to 3, $X = 2$ denotes occurrence of number less than equal to 1, $X = 3$ denotes occurrence of number greater than 6 and $X = 4$ denotes occurrence of number less than 6.

1) Probability that the number appeared is prime number

$$\Pr(X = 0) = \frac{3}{6} \tag{1}$$

$$= \frac{1}{2} = 0.5 \tag{2}$$

2) Probability that the number appeared is greater than or equal to 3

$$\Pr(X = 1) = \frac{4}{6} \tag{3}$$

$$= \frac{2}{3} = 0.\bar{6} \tag{4}$$

3) Probability that the number appeared is less than or equal to 1

$$\Pr(X = 2) = \frac{1}{6} \tag{5}$$

$$= 0.1\bar{6} \tag{6}$$

4) Probability that the number appeared is greater than 6

$$\Pr(X = 3) = \frac{0}{6} \tag{7}$$

$$= 0 \tag{8}$$

5) Probability that the number appeared is less than 6

$$\Pr(X = 4) = \frac{5}{6} \tag{9}$$

$$= 0.8\bar{3} \tag{10}$$