

Assignment 4

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Abstract—This document contains the solution for Assignment 4 (CBSE Class 10 Chapter 15 Exercise 15.1 Question 21)

Question 21: A lot consists of 144 ball pens of which 20 are defective and the others are good. Nuri will buy a pen if it is good, but will not buy if it is defective. The shopkeeper draws one pen at random and gives it to her. What is the probability that

- (i) She will buy it?
- (ii) She will not buy it?

Solution : Given ,

- 1) The total number pens in the lot is 144
- 2) The number of defective pens is 20
- 3) So, the number of good pens

$$= 144 - 20 = 124 \quad (1)$$

Let the random variable X be mapped to the following set of real numbers , $X \in \{0, 1\}$, where $X = 0$ denotes "the pen drawn is good" and $X = 1$ denotes "the pen drawn is defective".

- (i) Probability that a pen drawn is good:

$$\Pr(X = 0) = \frac{124}{144} = 0.86 \quad (2)$$

- (ii) Probability that a pen drawn is defective:

$$\Pr(X = 1) = \frac{20}{144} = 0.14 \quad (3)$$

One can also notice that:

$$\Pr(X = 0) + \Pr(X = 1) = 0.86 + 0.14 = 1 \quad (4)$$