

# Assignment 1

## NCERT Exemplar

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### I. QUESTION 10.13.1.24

One ticket is drawn at random from a bag containing tickets numbered 1 to 40. The probability that the selected ticket has a number which is a multiple of 5 is (a)  $\frac{1}{5}$  (b)  $\frac{3}{5}$  (c)  $\frac{4}{5}$  (d)  $\frac{1}{3}$

**Solution:**

Let  $X_i$  be the sequence of independent Bernoulli random variables defined as:

$$X_i = \{1 \leq x \leq 40\} \quad (1)$$

There are a total of 8 numbers which are multiples of 5 in the range from 1 to 40. Therefore, the probability of selecting a number that is a multiple of 5 is calculated as:

$$p_X(X_i \text{ is divisible by } 5) = \frac{8}{40} \quad (2)$$

$$= \frac{1}{5} \quad (3)$$