EE23010 NCERT Exemplar

Vishal A - EE22BTECH11057

Question 10.13.3.35

Box A contains 25 slips of which 19 are marked Rs 1 and others are marked Re 5 each. Box B contains 50 slips of which 45 are marked Rs 1 and others are marked Rs 13 each. Slips of both boxes are poured into a third box and reshuffled. A slip is drawn at random. What is the probability that it is marked other than Rs 1?

Solution:

Random variable	Value	Definition
X_1	1	Slips of Rs 1
X_1	0	Slips of Rs 5

TABLE I

Box A

Random variable	Value	Definition
X_2	1	Slips of Rs 1
X_2	0	Slips of Rs 13

TABLE II

Box B

Box A and Box B are combined together

Random variable	Sample space(S)	Value	Definition
X_3	75	1	Slips of Rs 1
X_3	75	0	Slips which are not Rs 1

TABLE III

DISTRIBUTION

$$\Pr(X_3 = 0) = \frac{X_1(0) + X_2(0)}{S} \qquad (1)$$

$$= \frac{11}{75} \qquad (2)$$