Assignment 1
Ncert Exampler

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EE22BTECH11042

I. QUESTION 12.13.2.74

A bag contain 5 red and 3 blue balls. If 3 balls are drawn at random without replacement, the probability of getting exactly one red ball is

1) $\frac{45}{196}$
2) $\frac{135}{392}$
3) $\frac{15}{56}$
4) $\frac{15}{29}$

Solution:

Let,

$$N = R + B \tag{1}$$

$$n = r + b \tag{2}$$

where R,B and r,b represents the number of Red and Blue balls respectively within N, n. Then

$$\Pr(r, b) = \frac{{}^R C_r \, {}^B C_b}{{}^{R+B} C_{r+b}} \tag{3}$$

So,Probability of getting exactly 1 Red ball,

$$\Pr(1, 2) = \frac{{}^5 C_1 \, {}^3 C_2}{{}^8 C_3} \tag{4}$$

$$, = \frac{15}{56} \tag{5}$$

$\therefore$ Option (3) is correct.