Assignment

EE23010: Probability and Random Processes
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Question: A box contains 3 orange balls, 3 green balls and 2 blue balls. Three balls are drawn at random from the box without replacement. The probability of drawing 2 green balls and one blue ball is

1) $\frac{3}{8}$

2) $\frac{2}{21}$

3) $\frac{1}{28}$

4) $\frac{167}{168}$

Solution:

Let,

$$N = O + G + B \tag{1}$$

$$n = o + g + b \tag{2}$$

where O,G,B and o,g,b represents the number of Orange, Green and Blue balls respectively within N, n. Then

$$\Pr(o, g, b) = \frac{{}^{O}C_{o}\,{}^{G}C_{g}\,{}^{B}C_{b}}{{}^{O+G+B}C_{o+g+b}} \tag{3}$$

So,Probability of 2 Green and 1 blue ball,

$$\Pr(0, 2, 1) = \frac{{}^{3}C_{0}\,{}^{3}C_{2}\,{}^{2}C_{1}}{{}^{8}C_{3}} \tag{4}$$

$$= \frac{3}{8} \tag{5}$$

$\therefore$ Option (1) is correct.