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ECO-602 Environmental Data Analysis
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WEEK 5: READING QUESTIONS

Q1: The sample space is 4 because there are 3 species $n = 3$, and $n + 1$ = the sample space.

Q2: Given the scenario description there are three ways to collect two acorns of the same species. This is because there are three species in the sample space and you are blindly picking up two at the same time.

Q3: Given the scenario there three ways to pick up two acorns of different species because you are picking them up at the same time and order does not matter.

Q4: (a,a)(a,r)(a,m)(r,r)(r,a)(r,m)(m,m)(m,r)(m,a)

33% this is because you have a 33% chance of picking up 1 of the 3 species of oak. 1/3rd

Q5: 33% again because you have a $1/3^{rd}$ chance of picking up *Q. macrocarpa* because each time is independent. 1/3rd

Q6: Because order does matter, the probability of Q. rubra being in your right pocket after checking your left is 11%. 1/9th

Q7: You have an 11% chance of getting both *Q. rubra*.

Q8: 22% because position doesn't matter. $2/9^{th}$

Q9: Because order matters, to find *Q. alba* in your left pocket and *Q. rubra* in your right there is 11% chance on this occurring. $1/9^{th}$

Q10: The size of the sample space of this distribution is Infinity

Q11: The sample size of this distribution is 10 when considering a Binomial distribution with $n = 10$ and $p = 0.6$.

Q12: Binomial and Poisson distributions are good models for counts because the look at the possible occurrences of an event by using *n*.

Q13: The biggest difference between Binomial distribution and Poisson distribution is that Binomial is among discrete trails and Poisson is among continuous domain. Poisson is used when success can happen at any moment in a domain and Binomial is told what percentage of success can happen. I would use Binomial distribution instead of Poisson if I was playing Yahtzee and I had 4 dice showing the number 6 and I wanted to see what the possibility of rolling a 5^{th} 6 to get Yahtzee would be.