# Answer to Multiple Choice Question

To determine the most plausible sequence of percentages of yellow candies in five samples, I need to analyze the sampling distribution for proportions.

Given information:

- Population proportion of yellow candies: p = 0.35 (35%)

- Sample size for each student: n = 20

- Each student takes a random sample

When taking random samples, we expect some variation around the true population proportion (35%). The sampling distribution of the sample proportion follows an approximately normal distribution with:

- Mean = p = 0.35

- Standard deviation = √[p(1-p)/n] = √[0.35(0.65)/20] ≈ 0.107 (or about 10.7 percentage points)

Applying the empirical rule, about 95% of sample proportions should fall within ±2 standard deviations of the mean, which is roughly 14% to 56%.

Let me evaluate each option:

(A) 30%, 35%, 15%, 40%, 50%

These values range from 15% to 50%, all within about 2 standard deviations of the expected 35%, though 15% is near the lower boundary of what we'd expect.

(B) 35%, 35%, 35%, 35%, 35%

Getting exactly 35% in all five samples would be extremely unlikely. With n=20, this would mean exactly 7 yellow candies in each sample, which is too consistent for random sampling.

(C) 5%, 60%, 10%, 50%, 95%

These values show extreme variations (5%, 10%, 95%) that are more than 2 standard deviations from the mean, making this sequence highly improbable.

(D) Any of the above.

This cannot be correct since option (C) is highly implausible.

\*\*The answer is (A) 30%, 35%, 15%, 40%, 50%\*\*

This sequence shows reasonable variation around the true proportion of 35%, with values that could realistically occur in random samples of size 20.