FRAPPY! Scoring Rubric

Use the following rubric to score your response. Each part receives a score of "Essentially Correct," "Partially Correct," or "Incorrect." When you have scored your response, reflect on your understanding of the concepts addressed in this problem. If necessary, note what you would do differently on future questions like this to increase your score.

Intent of the Question
The goal of this question is to determine your ability to construct and interpret a confidence interval and correctly interpret the confidence level in the context of a problem.

Solution
(a) Conditions: Random – The cans were randomly selected.
   Independent – There are more than 10(35) cans on the line.
   Normal – n = 35 (greater than 30), so the sampling distribution of \( \bar{x} \)
   will be approximately normal.

   95% CI for \( \mu \): 11.92 ± 2.042(0.085/\sqrt{35}) = (11.89, 11.94)

(b) We are 95% confident that the interval from 11.89 ounces to 11.94 ounces captures the true mean contents of the cans filled by this machine. It appears the machine may be filling less than it is supposed to since 12 is not in the interval.

(c) 95% of intervals constructed from random samples of 35 cans from this machine will be successful in capturing the true mean contents.

Scoring
Parts (a), (b), and (c) are scored as essentially correct (E), partially correct (P), or incorrect (I).

Part (a) is essentially correct if the response correctly checks the conditions for a one-sample \( t \) confidence interval for a mean AND correctly calculates the interval. Part (a) is partially correct if the conditions are not properly checked but the interval is correct. Note: the construction of a \( z \)-interval receives a partial at most.

Part (b) is essentially correct if the response correctly interprets the confidence interval in context AND correctly notes the machine appears to be underfilling because 12 is not contained in the interval. Part (b) is partially correct if the interpretation lacks context OR fails to make a decision about the machine based on the interval.

Part (c) is essentially correct if the response correctly interprets the confidence level in context. Part (c) is partially correct if the interpretation lacks context.
4 **Complete Response**
   All three parts essentially correct

3 **Substantial Response**
   Two parts essentially correct and one part partially correct

2 **Developing Response**
   Two parts essentially correct and no parts partially correct
   One part essentially correct and two parts partially correct
   Three parts partially correct

1 **Minimal Response**
   One part essentially correct and one part partially correct
   One part essentially correct and no parts partially correct
   No parts essentially correct and two parts partially correct

<table>
<thead>
<tr>
<th>My Score:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>What I did well:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>What I could improve:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>What I should remember if I see a problem like this on the AP Exam:</th>
</tr>
</thead>
</table>