

Easy

Deputy Executive Engineer (Electricity) 2026

Gujarat Public Service Commission / Assistant Engineer (Electrical)

Which of the following instruments are correctly matched with their use in an Energy Audit?

1. Lux Meter: Measuring illumination levels.

2. Ultrasonic Flow Meter:

A

1 and 2 only

Correct

B

2 and 3 only

C

1 and 3 only

D

1, 2 and 3

Correct Answer: A

Full Detailed Explanation

Correct Answer: A - 1 and 2 only

Quick Concept Explanation

Energy management begins by establishing where and how energy is used. Energy intensity normalizes energy use by useful output, such as kWh per unit of production. Key relation: $\text{Energy intensity} = \frac{\text{Energy consumed}}{\text{Useful production output}}$. Exam focus: Normalize energy use before comparing production periods. Common trap: A detailed audit is not just a more detailed desk review; it includes measurements.

Statement-wise Verification

Statement 1 - Correct. Lux Meter: Measuring illumination levels.

Statement 2 - Correct. Ultrasonic Flow Meter: Measuring liquid flow in pipes without cutting them.

Statement 3 - Incorrect. Combustion Analyzer: Measuring the power factor of electric motors. A combustion analyzer measures flue-gas parameters such as $\text{O}_2/\text{CO}/\text{CO}_2$ and combustion efficiency, not motor power factor.

Core Concept

Energy management begins by establishing where and how energy is used. A preliminary/walk-through audit uses bills, production data and observations to identify major opportunities; a detailed audit adds instrumented measurements and engineering calculations. Energy intensity normalizes energy use by useful output, such as kWh per unit of production.

Formula / Key Relationship

$\text{Energy intensity} = \frac{\text{Energy consumed}}{\text{Useful production output}}$