Easy | Deputy Executive Engineer (Electric | 2026 | orts Authority of Gujarat / Assistant Engineer (El

Consider the following statements regarding industrial sensors: 1. Inductive proximity sensors are used to detect metallic objects without physical contact. 2.

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 Inductive proximity sensors detect conductive/metal targets through electromagnetic field changes. Capacitive proximity sensors respond to dielectric changes and can detect metals, plastics, powders and liquids. Key relation: Pt100: ~100 at 0 C (standard platinum RTD).Exam focus: Accuracy/stability RTD; very high temperature/rugged thermocouple. Common trap: RTDs are not generally less accurate than thermocouples for precision measurement. Statement-wise Verification Statement 1 - Correct.Inductive proximity sensors are used to detect metallic objects without physical contact.Inductive proximity sensors detect conductive/metal targets through electromagnetic field changes. Statement 2 - Correct.Capacitive sensors can detect both metallic and non-metallic (liquid, plastic) materials.Capacitive proximity sensors respond to dielectric changes and can detect metals, plastics, powders and liquids. Statement 3 - Incorrect.RTDs (Resistance Temperature Detectors) are less accurate than thermocouples for high-precision measurements.The correct principle is: RTDs are valued for accuracy and stability over moderate temperature ranges, whereas thermocouples cover much higher ranges and rugged conditions. Core Concept Inductive proximity sensors detect conductive/metal targets through electromagnetic