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PEF3006 Process Control: Problems for Exercise 2

Problem 1

Assume that the setpoint for a specific temperature control system is 80 degrees C. Would you select a thermocouple or a Pt100 element as temperature sensor?

Problem 2

Suppose a DP sensor is used to measure the level of oil in an oil tank where there is atmospheric pressure above the oil surface. The sensor measures the static pressure at a point in a vertical pipe attached to the bottom of the tank. This measuring point is situated 0.5 meters below the bottom of the tank.

Assume that the DP sensor indicates 0.1 bar. What is the oil level of the tank relative to the bottom of the tank?

Problem 3

In the PPT document about sensors and actuators only a few different measurement principles are described. Mention at least two measurement principles – beyond those described in the PPT document – for the following process variables (using e.g. Internet):

- Level
- Pressure
- Flow (liquid)

It is not expected that you give any description of sensors here. It is sufficient to just mention the measurement principles using one of two words.