Checking Current Through a Coated Strip

Base your answers on the information provided and your knowledge of chemistry. Use the 2025 Chemistry Reference Tables as needed.

A display uses a metal strip covered by a thin coating. The class places two electrical contacts at opposite ends. The model can expose the metal at either contact without changing the metal between the contacts. Each test uses the same voltage.

Test	Metal exposed at left contact	Metal exposed at right contact	Current detected
P	No	No	No
Q	Yes	No	No
R	Yes	Yes	Yes

1 Which pair isolates the effect of exposing metal at the right contact while the left is already exposed?

(1) P and Q

(2) P and R

(3) Q and R

(4) All three together

2 Explain why test P alone cannot establish that the metal inside the strip fails to conduct. [1]

Answer and work

3 A student says removing the coating at just one end is enough to measure the metal’s conduction. Evaluate the claim using Q and R. [1]

Answer and work

4 Describe a separate test of whether the coating by itself carries current in the model. [1]

Answer and work