Checking a Filter at Two Detector Distances

Scoring guide · one credit per question · review written work against each rubric

Checking a Filter at Two Detector Distances

Question 1

Choice (4)

The 20 and 10 readings use the same detector distance. Their only stated difference is the filter.

Question 2

At 1 m the fraction is 40/80 = 0.50. At 2 m the fraction is 10/20 = 0.50.

Question 3

At 2 m the open reading is 20 and the filtered reading is 10, giving a passed fraction of 10/20 = 0.50. At 1 m the fraction is 40/80 = 0.50. The smaller raw reading at 2 m comes with less light reaching the detector before filtering.

Question 4

If 18 is one half of the open reading, the open reading should be 36. Remove the filter while keeping the lamp and detector at the same positions and measure again.