SMART EXAM RESOURCES
9702 PHYSICS TOPIC QUESTIONS
TOPIC: PHYSICAL QUANTITIES AND UNITS
SUB-TOPIC: ERRORS AND UNCERTAINITIES
SUB-SUB-TOPIC: CAUSE OF ERRORS

1 Measurements of a constant current in a wire are taken using an analogue ammeter.

For these measurements, describe one possible cause of:

1. a random error

.....

.....

2. a systematic error.

.....

.....

[2]

Mark Scheme:

(i)	units of Q: As	**C1**
	units of C: $kg^{-1}\ m^{-2}\ A^2\ s^4$	**A1**
(ii)	**1.** e.g. reading scale from different angles (wrongly) interpolating between scale readings/divisions	**B1**
	2. e.g. zero error wrongly calibrated scale	**B1**

2 Measurements of a constant current in a wire are taken using an analogue ammeter.

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1.	e.g. reading scale from different angles (wrongly) interpolating between scale readings/divisions	**B1**
2.	e.g. zero error wrongly calibrated scale	**B1**

3 One type of weighing machine, known as a steelyard, is illustrated in Fig. 3.1.

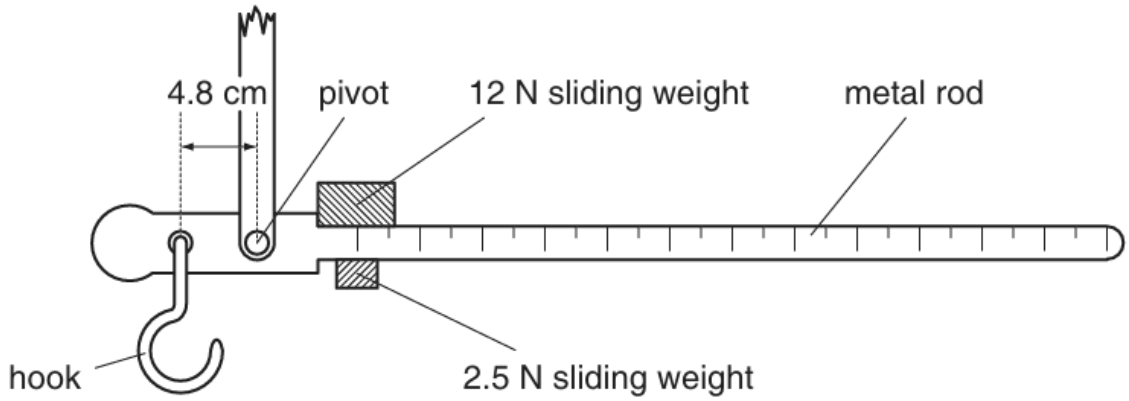

Fig. 3.1

The two sliding weights can be moved independently along the rod.

With no load on the hook and the sliding weights at the zero mark on the metal rod, the metal rod is horizontal. The hook is 4.8 cm from the pivot.

A sack of flour is suspended from the hook. In order to return the metal rod to the horizontal position, the 12 N sliding weight is moved 84 cm along the rod and the 2.5 N weight is moved 72 cm.

Suggest why this steelyard would be imprecise when weighing objects with a weight of about 25 N.

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.....[1]

Mark Scheme:

either friction <u>at the pivot</u> *or* small movement of weights	B1	[1]