



General Certificate of Education  
Advanced Level Examination  
June 2010

## Physics

## PHY6T/P10/TN

Unit 6 Investigative and Practical Skills in A2 Physics

Investigative Skills Assignment (ISA) P

## Instructions to Supervisors

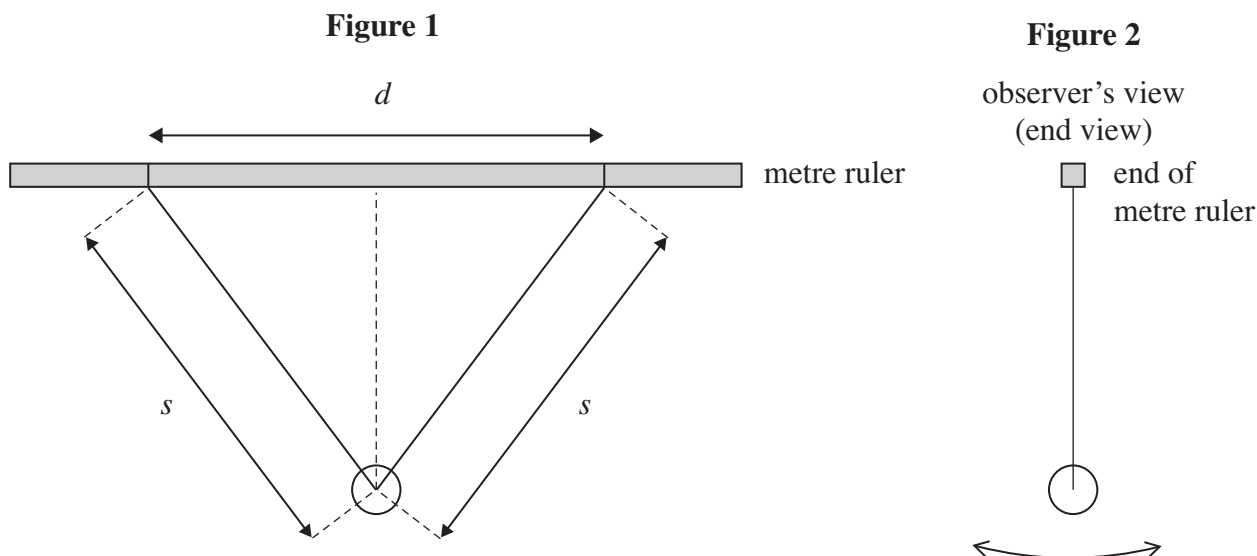
### Confidential

- These instructions are provided to enable centres to make appropriate arrangements for the Unit 6 ISA P test.
- For further details of the administration of the ISA and for information about these instructions, please see the document *Guidance Instructions for the Administration of Investigative Skills Assignment (ISA): GCE Physics*

## ISA (P) Simple Harmonic Motion (SHM)

### Centre instructions for the investigation

In this ISA, candidates will be investigating the simple harmonic motion (SHM) of a V-shaped pendulum. The diagram below illustrates the arrangement. Distance  $s$  should be about 60 cm.



### Information for centres

Candidates should be told approximately one week before undertaking Stage 1 of the ISA that the investigation will be about the simple harmonic motion of a V-shaped pendulum.

Stage 2 of the ISA (the written tests: Sections A and B) should take place as soon as possible after the practical investigation.

### Apparatus

Centres should ensure that the apparatus provided can be used safely. Each candidate will need:

- a metre ruler
- clamps and stands to suspend metre ruler horizontally above bench
- a pendulum bob
- thin string or thread
- a fiducial marker (or reference marker) e.g. plasticine and pin
- a stopclock or stopwatch reading to a minimum of 0.01 s
- access to a spirit level (could be shared by several candidates)

The diagram shows the theoretical geometric arrangement of the strings and pendulum bob. In practice the outcome of the experiment will not be affected if the strings are attached to a single point at the top of the pendulum bob. The strings should then be suspended from the ruler as shown. The string length will remain constant throughout the experiment and distance,  $s$ , will be constant (to a very close approximation) when  $d$  is varied. The string should be attached to the metre ruler with wire or string loops, which can be adjusted along the ruler. When the pendulum bob is displaced in a direction perpendicular to the plane of the paper, the V-shaped pendulum will oscillate with SHM. Candidates will investigate the relationship between the time period,  $T$ , of small amplitude oscillations and the distance  $d$ .

The apparatus should be positioned so that candidates can observe the oscillation from the end view shown in the diagram.