General Certificate of Education
Advanced Level Examination
June 2012

Physics PHY6T/Q12/TN

Unit 6 Investigative and Practical Skills in A level Physics

Investigative Skills Assignment (ISA) Q

Instructions to Supervisors

Confidential

- These instructions are provided to enable centres to make appropriate arrangements for the Unit 6 ISA Q 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 (Q) Oscillations of water in a U-tube

Centre Instructions for the Investigation

In this ISA, candidates will be expected to measure the time period of oscillations of a known volume of water in a U-tube of measured internal diameter.

Information for centres

Candidates should be told approximately one week before undertaking Stage 1 of the ISA that the investigation will involve the damped simple harmonic motion of water in a U-tube and the measurement of an internal diameter.

Stage 2 of the ISA (the written tests: Sections A and B) should be given 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) U-tube with arms at least 75 cm in length and internal diameter of about 1 cm. This should be made up from two straight glass tubes clamped vertically side by side and joined by a length of flexible tubing of similar diameter at their lower ends. The upper rims of the glass tube must be straight and not have sharp edges as candidates will be asked to seal one end of the U-tube with a finger

(b) measuring cylinder to 100 cm^3

(c) supply of water in a beaker

(d) vernier callipers to measure the internal diameter of the tube

(e) plastic syringe of capacity about 50 cm^3 with tubing to connect to 1 side of the U-tube (so as to displace the water level). This connecting tube may not be necessary if the syringe nozzle fits snugly into the open end of the glass tube

(f) funnel to fit into the glass tube

(g) stopclock or stopwatch, precision at 0.1 s

(h) fiducial marker such as a clamp and optical pin.