

International Advanced Level in Physics

Requirements for practical examination

Centres offering the International Advanced Level in Physics now have the choice to offer either unit 6 or unit 7. The first examination in unit 7 is January 2017. Centres that choose to offer unit 7 must be able to fulfill the requirements outlined in this document.

This document outlines what centres need to do to successfully plan and carry out the practical examination.

- It is the responsibility of the centre to carry out a full risk assessment before any practical examination takes place.
- The detailed requirements for the practical examination will be specified in the **IAL Physics Practical Examination Confidential Instructions document**, which will be sent to centres well in advance of the date of the examination.
- Centres are required to supply their own materials for use in the practical examination. Therefore, an area of complete security where materials can be prepared and stored is essential.
- It is assumed that candidates have access to the basic range of laboratory apparatus used for the International Advanced Level Physics course.

It should be noted that not all of the materials listed below will be needed in any one practical examination.

Laboratories

To conduct the practical examination, centres must have a suitably equipped laboratory:

- the laboratory temperature must be maintained at a comfortable level. The levels of lighting and ventilation should be suitable for the practical examination
- laboratories must have adequate bench space for each candidate
- means of dimming laboratory lighting, for example screens or blinds
- electrical supply for each candidate
- gas supply – not necessarily mains supply
- candidates must be able to work safely in the laboratory. They must be supplied with essential safety equipment, including eye protection if required

Apparatus

It is expected that centres will have sufficient basic laboratory apparatus for the practical examination to take place. As far as possible, the practical examination will be designed to require basic laboratory apparatus and simple adaptations of everyday materials.

Basic apparatus

- Stopwatches or timers
- Disposable springs
- Retort stands with boss and clamp
- Ramps of at least 1 m long and 30 cm wide
- Trolleys
- Spheres, such as ball bearings or marbles
- Pendulum bobs
- Slotted masses and hangers
- Callipers with vernier or digital scale
- Micrometers with mechanical or digital scale
- Metre rules
- Digital (or analogue) meters to read a.c. and d.c. :
 - current in ranges 200 μA to 20 A
 - voltages in ranges 20 mV to 20 V
 - resistance in ranges 200 Ω to 20 M Ω
- Fixed and variable resistors and capacitors to make simple circuits
- Low voltage d.c. power supplies (these could be batteries)
- A top pan balance, or similar direct reading balance, with resolution of at least 0.1 g

Additional apparatus

The apparatus listed below will not be used by candidates during the practical examination but they will be expected to have experience of using it and understand how it can be used in practical experiments.

- Variable frequency generators
- Oscilloscopes
- Light gates
- Data-logging equipment using sensors for:
 - position
 - force
 - voltage
 - current
 - magnetic field