Instructions for preparing apparatus

These instructions detail the apparatus required by each candidate for each experiment in this paper. A summary of the questions that will be presented to the candidates is included, where appropriate, to allow the Biology teacher to test the apparatus appropriately. No access is permitted to the question paper in advance of the examination session.

If a candidate breaks any of the apparatus, or loses any of the material supplied, the matter should be rectified and a note made in the Supervisor's Report.
Each candidate must be supplied with the following apparatus and materials.

Question 1

(i) One germinated broad bean seed (or suitable alternative) showing development of both plumule and radicle with root hairs, labelled S31. The entire length should not exceed 6 cm.

Beans may be germinated in glass jars containing a ring of blotting / filter paper, so that the seeds are trapped between the paper and the glass. Water is then added to the container. It is important that the seeds do not dry out.

(ii) Hand lens.

(iii) Ruler (mm).

(iv) Length of strong thin thread measuring 10 cm.

In order to ensure that the beans are at a suitable stage of germination, Centres are strongly advised to start several batches at different times prior to the examination.
Question 2

(i) Test-tube rack with at least six test-tubes.

(ii) Means of heating the test-tube contents.

(iii) Benedict's reagent, labelled as such, with means of delivering small drops.

(iv) Biuret reagent, labelled as such, with means of delivering small drops.

(v) Powdered sulphur, labelled as such.

(vi) Spatula or splint.

(vii) 10 cm³ of each of four ‘urine’ samples, made up as follows and labelled A, B, C, and D.

   A  To a litre of water add enough Bovril OR Marmite OR cold tea to produce a pale straw colour.

   B  As for A plus 10 g of glucose per litre.

   C  As for A plus 5 g of albumin per litre.

   D  As for A plus a few drops of detergent / soap solution, to ensure that the sulphur sinks. This will need to be tested prior to the examination.

Note: Candidates may be informed that the urine is not real but synthetic. It is used for the training of laboratory technicians, and is therefore perfectly safe.

Procedure to be followed by candidates.

Candidates are required to carry out food tests on A, B, C and D.