This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which Examiners were initially instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners’ meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published Report on the Examination.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates’ scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the Report on the Examination.

- CIE will not enter into discussion or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the November 2005 question papers for most IGCSE and GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.
1 20 marks

(a) Identification of the acid
   Test 1 Effervesces
      Gas pops with a lit splint
      Hydrogen evolved
   (1)

   Test 2 No reaction
   (1)

   Test 3 White ppt
   Acid is hydrochloric acid
   (1)

(b) Titration
   4 marks for each of two titration results within 0.2 cm³ of the
   Supervisor’s value.
   2 marks for results within 0.3 cm³ etc
   No marks for results more than 0.4 cm³ from the supervisor’s
   value

   Maximum of 3 marks for concordance, i.e. results within 0.2 cm³

   1 mark for taking a correct average

(c) concentration of acid in mol/dm³
   (2)
2 20 marks  
S is aluminium chloride  
T is lead nitrate  
U is silver nitrate

Solution S  
Test 1 White ppt  
Soluble in excess sodium hydroxide  
Colourless solution  
Insoluble in excess ammonia

Test 2 No reaction

Test 3 No reaction

Solution T  
Test 1 White ppt  
Soluble in excess sodium hydroxide  
Colourless solution  
Insoluble in excess ammonia

Test 2 White ppt

Test 3 Yellow ppt

Solution U  
Test 1 brown ppt  
Insoluble in excess sodium hydroxide  
Soluble in excess ammonia  
Colourless solution

Test 2 White ppt

Test 3 pale yellow ppt

Conclusion  
Any two of S is Al\(^{3+}\), T is Pb\(^{2+}\), U is Ag\(^+\)

(2)