Rewarding Learning

ADVANCED
General Certificate of Education
2022

Chemistry

Assessment Unit A2 3

assessing

Further Practical Chemistry
Practical Booklet A

[ACH31]

THURSDAY 12 MAY, MORNING

MARK SCHEME

General Marking Instructions

Introduction

Mark schemes are published to assist teachers and students in their preparation for examinations. Through the mark schemes teachers and students will be able to see what examiners are looking for in response to questions and exactly where the marks have been awarded. The publishing of the mark schemes may help to show that examiners are not concerned about finding out what a student does not know but rather with rewarding students for what they do know.

The Purpose of Mark Schemes

Examination papers are set and revised by teams of examiners and revisers appointed by the Council. The teams of examiners and revisers include experienced teachers who are familiar with the level and standards expected of students in schools and colleges.

The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

The questions and the mark schemes are developed in association with each other so that the issues of differentiation and positive achievement can be addressed right from the start. Mark schemes, therefore, are regarded as part of an integral process which begins with the setting of questions and ends with the marking of the examination.

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all the markers are following exactly the same instructions and making the same judgements in so far as this is possible. Before marking begins a standardising meeting is held where all the markers are briefed using the mark scheme and samples of the students' work in the form of scripts. Consideration is also given at this stage to any comments on the operational papers received from teachers and their organisations. During this meeting, and up to and including the end of the marking, there is provision for amendments to be made to the mark scheme. What is published represents this final form of the mark scheme.

It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published: the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience of the examiner, for example, where there is no absolute correct response – all teachers will be familiar with making such judgements.

COVID-19 Context

Given the unprecedented circumstances presented by the COVID-19 public health crisis, senior examiners, under the instruction of CCEA awarding organisation, are required to train assistant examiners to apply the mark scheme in case of disrupted learning and lost teaching time. The interpretation and intended application of the mark scheme for this examination series will be communicated through the standardising meeting by the Chief or Principal Examiner and will be monitored through the supervision period. This paragraph will apply to examination series in 2021–2022 only.

		AVAILABLE MARKS
1	The iron compounds are hydrated iron(II) sulfate and hydrated iron(III) chloride.	
(a)	iron(II): green/colourless (solution) [1] iron(III): yellow/orange (solution) [1] [2]	
(b)	<table><tr><th>Salt solution</th><th>Colour with universal indicator paper</th><th>Approximate pH</th></tr><tr><td>Iron(II) salt</td><td>orange [1]</td><td>4 [1]</td></tr><tr><td>Iron(III) salt</td><td>red [1]</td><td>1/2 [1]</td></tr></table> [4]	
(c)	green precipitate [1] brown precipitate [1] [2]	
(d)	brown precipitate [1] bubbles [1] splint goes out [1] [3]	
(e)	iron(II): (upper layer remains) colourless [1] iron(III): (upper layer turns) purple [1] [2]	
(f)	iron(II): (pale) pink solution forms [1] iron(III): (deep) red solution forms [1] [2]	
(g) **(i)**	bubbles/metal darkens [1]	
(ii)	more bubbles produced/metal darkens more quickly in the test tube containing the iron(III) salt solution [1]	
(h)	solid A iron(III) salt solution changes to purple in the test tube containing A [1]	18
2 **(a)**	mass of tablet recorded to 1 decimal place with units [1]	
(b)	bubbles/(some) solid dissolves/solid remains [1]	
(c)	residue – white solid filtrate – colourless (solution) [1]	
(d)	headings and units included/cm^3 in three column headings [1] all readings to 1 decimal place [1] correct calculation of titres [1] rough titre greater than accurate values [1] correct calculation of mean titre with unit [1] [5]	8
3	**M** is ammonium metavanadate.	
(a)	yellow (solution) [1]	
(b)	green/blue [1]	
(c) **(i)**	brown/yellow solution [1]	
(ii)	blue/green solution/precipitate forms [1]	4
	Total	**30**