



GCSE MARKING SCHEME

JANUARY 2016

**SCIENCE B
UNIT 2 - FOUNDATION TIER
4782/01**

INTRODUCTION

This marking scheme was used by WJEC for the 2016 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners.


It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

GCSE SCIENCE B
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Question	Mark Scheme	Marks
1 (a)	All correct (2) one or two correct (1) From left to right: sulfuric acid vinegar ammonia	2
(b)	H_2SO_4	1
(c) (i)	Any element from period 3 Accept element symbol	1
(ii)	Any Group 1 Accept element symbol	1
(d)	treatment of heart burn / cleaning metal surfaces <i>If three boxes ticked, award a max of 1 mark</i> <i>If four or more boxes ticked (0)</i>	2

Question	Mark Scheme	Marks									
<p>2 (a)</p>	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: 100px; margin-bottom: 10px;">Nucleus</div> <div style="border: 1px solid black; padding: 5px; width: 100px; margin-bottom: 10px;">Chromosome</div> <div style="border: 1px solid black; padding: 5px; width: 100px; margin-bottom: 10px;">DNA</div> <div style="border: 1px solid black; padding: 5px; width: 100px;">gene</div> </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: 150px; margin-bottom: 10px;">These have different forms called alleles.</div> <div style="border: 1px solid black; padding: 5px; width: 150px; margin-bottom: 10px;">This controls the cells activities</div> <div style="border: 1px solid black; padding: 5px; width: 150px; margin-bottom: 10px;">This contains coded information that control the cell's functions</div> <div style="border: 1px solid black; padding: 5px; width: 150px;">These exist as pairs and contain sections of DNA in in the nucleus</div> </div> </div> <p>All correct (2), two correct (1), one correct (0)</p> <p>(b) (i) Females XX same pair /Males XY</p> <p>(ii) Sperm cells contains only 23 chromosomes/no paired chromosomes in sperm cell</p> <p>(iii) mutation</p> <p>(c) (i) Dd or DD</p> <p>(ii) 1 mark for each correct row/column</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 50px; height: 50px;"></td> <td style="width: 50px; height: 50px;">d</td> <td style="width: 50px; height: 50px;">d</td> </tr> <tr> <td style="width: 50px; height: 50px;">D</td> <td style="width: 50px; height: 50px;">Dd</td> <td style="width: 50px; height: 50px;">Dd</td> </tr> <tr> <td style="width: 50px; height: 50px;">d</td> <td style="width: 50px; height: 50px;">dd</td> <td style="width: 50px; height: 50px;">dd</td> </tr> </table> <p>(iii) 50%</p>		d	d	D	Dd	Dd	d	dd	dd	<p style="text-align: center;">2</p> <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> <p style="text-align: center;">2</p> <p style="text-align: center;">1</p>
	d	d									
D	Dd	Dd									
d	dd	dd									

Question	Mark Scheme	Marks
3 (a) (b) (i) (ii) (iii) (iv) (v) (vi)	mixture (1) metal plus another (named) element (1) bronze 74% low density, lightweight easily pressed into shape chromium (accept nickel) bronze (1) weather resistant /durable	1 1 1 1 1 1 2
4 (a) (b) (i) (ii) (c) (d)	(A) DBEC All correct (2) Two correct (1) 1 correct (0) causes cancer/mutations wear lead lined jacket / use machine behind lead glass Difference - ultrasound – uses sound waves gamma camera - uses ionising radiation/isotopes Similarity – used to form images of organs / soft tissue / pass through the body 	2 1 1 1 1 1
5 (a) (b) (i) (ii) (c) (i) (ii) (d) (e)	nitric acid (1) + potassium hydroxide (1) red 8.0-9.0 23.8 higher than other readings/ very different 20cm ³ neutralisation / increases / salt	2 1 1 1 1 1 3

Question	Mark Scheme	Marks
6 (a)	11% / 3.6g / 6	3
(b)	daily recommended quantity/amount (1) of a particular food type (1)	2
(c)	use a milk with less fat/use skimmed milk/eat less	1
(d)	increase in protein which is needed to help growth of baby The statements must be correctly and coherently linked for two marks	2 2
(e)	Any two of: obesity, tooth decay, diabetes	
7 (i)	Any three of: liver disease, liver cancer, cancer, diabetes, impotence, infertility, depression, long term social implications	3
(ii)	<p>Indicative content</p> <ul style="list-style-type: none"> • numbers of smokers has dropped • numbers of pupils drinking alcohol dropped • quote numbers or % • publicity / Health campaigns to reduce • reference to awareness of diseases related to smoking/alcohol <p>Marking bands</p> <p>5 - 6 marks. The candidate constructs an articulate, integrated account correctly linking relevant points, such as those in the indicative content, which shows sequential reasoning. The answer fully addresses the question with no irrelevant inclusions or significant omissions. The candidate uses appropriate scientific terminology and accurate spelling, punctuation and grammar.</p> <p>3 - 4 marks The candidate constructs an account correctly linking some relevant points, such as those in the indicative content, showing some reasoning. The answer addresses the question with some omissions. The candidate uses mainly appropriate scientific terminology and some accurate spelling, punctuation and grammar.</p> <p>1 - 2 marks The candidate makes some relevant points, such as those in the indicative content, showing limited reasoning. The answer addresses the question with significant omissions. The candidate uses limited scientific terminology and inaccuracies in spelling, punctuation and grammar.</p> <p>0 marks The candidate does not make any attempt or give a relevant answer worthy of credit.</p>	6