GCSE MARKING SCHEME

SUMMER 2016

ADDITIONAL APPLIED SCIENCE
UNIT 1 FOUNDATION TIER
4791/01

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 ADDITIONAL APPLIED SCIENCE
4791/01 Unit 1 Foundation Tier Mark Scheme Summer 2016

Question	Marking point	Mark
1. (a) (i)	chromatography dataloggers / titrations genetic profiling (One mark for each correct row)	3
(ii)	<u>Qualitative</u> will give an observation / <u>quantitative</u> will give numerical values.	1
(b) (i)	Draw a line on filter paper Place sample (of dissolved food) on line Place filter paper in a solvent (just below line)	3
(ii)	solvent stationary	2
2. (a)	Three (only) ticked correctly (3) Two correctly ticked (may be two or three ticks in total) (2) One correctly ticked (one or two incorrect ticks) (1) Four ticked of which three correct (2) Four ticked of which two correct, two incorrect (1) All ticked (0)	3

Reason	Disad ✓
Easier to create large quantities of fish oil	
It could cross breed and contaminate other plants	✓
GM rapeseed plant may be harmful	✓
The rapeseed crops will be more expensive	✓
Vegetarians can take the fish oil	

Question	Marking point	Mark
(b) (i)	152	1
(ii)	13	1
(iii)	22	1
(iv)	increased	1

Question	Marking point	Mark
3. (a) (i)	6(1) 4 (1) NH (1)	3
(ii)	N = 28 (1) O = 2 (1) 32 (allow ecf)(1) Correct RFM = 238 (1)(allow ecf)	4
b	Subs 1.44 x 300 (1) Ans = 432 (g) (1) Correct answer only (2)	2
4. (a)	<table><tr><td>Type of material</td><td>Example</td></tr><tr><td></td><td></td></tr><tr><td>metal (1)</td><td></td></tr><tr><td>composite (1)</td><td></td></tr><tr><td>polymer (1)</td><td></td></tr></table>	3
(b) (i)	soft	1
(ii)	{liquid / flows} at room temperature / low melting point	1
5. (a)	1 mark each correct position to a maximum of 3 C F E B D A	3
(b) (i)	yeast	1
(ii)	prevent contamination (with unwanted bacteria) / slow down bacterial growth	1
(iii)	kill bacteria/pathogen / slow down bacterial growth	1

Question	Marking point	Mark
6. (a) (i)	14 s	1
(ii)	Line to 30, 200 (1) Line to 43, 300 (1) Line to 55, 400 (1) Alternative mark scheme: All correct plots (2) Two correct plots (1) Point to point (1)	3
(iii)	fourth [1] short<u>est</u> <u>time</u> / steep<u>est</u> line on graph / <u>only</u> 12 s(1) (no ecf from graph)	2
(b)	Subs 400/55 (1) = 7.27 (m/s) (1) Accept 7.3 but not 7.2	2
(c)	All {sections / line(s)} will be steeper (1) because each time will be less (1) *Statements must be clearly and correctly linked to earn second mark.*	2

Question	Marking point	Mark
7. (a) (i)	count beats (1) in 30 s and double / 20 s and triple / 1 minute (1)	2
(ii)	345 (seen anywhere) (1) mean = 69 (1)	2
(iii)	resting pulse rate decreases (1) breathing rate decreases (1) volume / heart beat increases (1)	3
(b) (i)	drug use	1
(ii)	Indicative content: • high blood pressure linked to stroke/kidney disease – reduce with exercise/less salty diet • smoking linked to lung disease – give up • high cholesterol linked to stroke / heart disease – low fat diet • obesity linked to diabetes/heart disease – reduce calorie intake • alcohol linked to liver disease – reduce intake [6] **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. **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. **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. **0 marks** The candidate does not make any attempt or give a relevant answer worthy of credit.	6