Cambridge O Level

Cambridge Assessment International Education
Cambridge Ordinary Level

SUBJECT **5129/22**

Paper 2 Theory **May/June 2018**

MARK SCHEME

Maximum Mark: 100

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the May/June 2018 series for most Cambridge IGCSE™, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

PUBLISHED

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

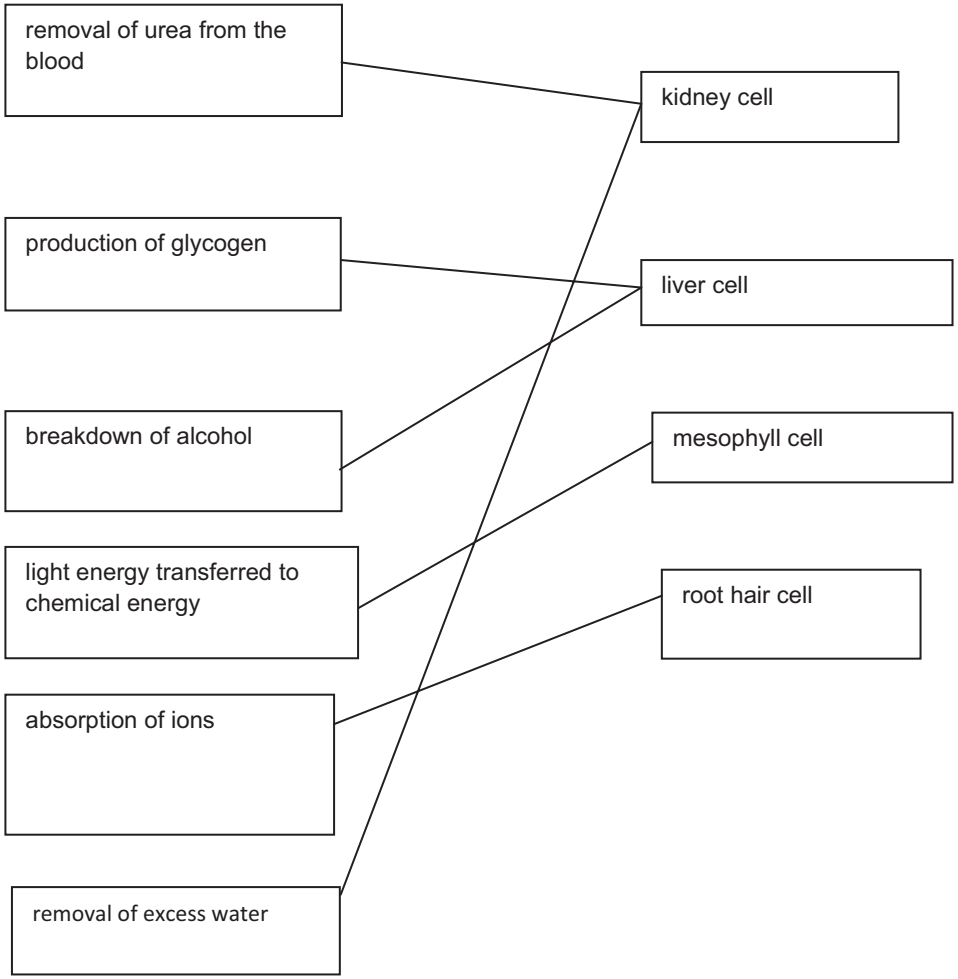
Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Question	Answer	Marks
1(a)(i)	line from *petal* ending on a petal ; line from *anther* ending on an anther ;	**2**
1(a)(ii)	*anther* – *p*roduces pollen (grains) / ref to production of male gamete ; *petal* – (brightly coloured) to attract insects / landing pad for insects ;	**2**
1(b)	oxygen ; water ;	**2**
1(c)	grow the seeds under controlled / same conditions ; if plants produced are different to each other / different to parent plant then they have been produced by sexual reproduction ;	**2**

Question	Answer	Marks
2(a)(i)	62 ;	**1**
2(a)(ii)	32 ; 124 ; 6.2 ;	**3**
2(b)	(pH) 11–14 ;	**1**
2(c)	ionic ; compound of metal and non-metal ;	**2**

Question	Answer	Marks
3(a)	ammeter symbol in series with lamp ; voltmeter symbol in parallel with lamp ;	**2**
3(b)(i)	(current =) 0.5(A) ; (potential difference =) 2.5(V) ;	**2**
3(b)(ii)	$V=IR$ / R = 2.5 / 0.5 ; 5 ; ohms / Ω ;	**3**

Question	Answer	Marks
4		6

Question	Answer	Marks
5(a)	12 ; 2,8,4 ; 16 ; 2,8,7 ;	**4**
5(b)(i)	W ;	**1**
5(b)(ii)	Z ;	**1**
5(b)(iii)	Y ;	**1**

Question	Answer	Marks
6(a)(i)	alkanes ;	**1**
6(a)(ii)	C_nH_{2n+2} ;	**1**
6(a)(iii)	increases ;	**1**
6(b)	exothermic ;	**1**
6(c)	carbon dioxide ; water ;	**2**

Question	Answer	Marks
7(a)(i)	26.2 (mm) ;	**1**
7(a)(ii)	26.2 – 24 or 2.2 ; 1.1 (mm) ;	**2**
7(b)(i)	15 (cm^3) ;	**1**

Question	Answer	Marks
7(b)(ii)	(ρ)= m ÷ v / 33.5 ÷ 15 ; 2.23 ;	**2**

Question	Answer	Marks
8(a)	glucose and oxygen (on LHS); water and carbon dioxide (on RHS);	**2**
8(b)(i)	7000 (kJ per day) ;	**1**
8(b)(ii)	17 year old male ;	**1**
8(b)(iii)	2000 (kJ per day) ;	**1**
8(b)(iv)	any **two** from • males require more energy (per day) than females ; • children require less energy (per day) than adults ; • more active adults need more energy per day ;	**2**

Question	Answer	Marks
9(a)	Earth ;	**1**
9(b)	carries current (to the appliance) ; at high / varying voltage ;	**2**
9(c)(i)	$P = VI$ / I = 700 / 230 ; 3.0 (A) ;	**2**
9(c)(ii)	5 A ;	**1**

Question	Answer	Marks
10	any **three** from • liver damage ; • brain / nerve damage / dementia ; • anemia ; • (higher risk of) cancer ; • cardiovascular disease / heart disease ; • family breakdown ; • gastritis / pancreatitis; • gout ; • delirium tremens ; • depression ;	**3**

Question	Answer	Marks
11(a)	haematite ;	**1**
11(b)	oxidised ; carbon monoxide ; reduces ; acidic ; slag ;	**5**

Question	Answer	Marks
12	C ; A ; B ; A ;	**4**

Question	Answer	Marks
13(a)	aorta ; pulmonary vein ; (left) ventricle ; muscular wall ;	**4**
13(b)	valve closes / pockets fill with blood ; to control direction of blood flow / prevent blood from moving backwards ;	**2**

Question	Answer	Marks
14(a)	two bonding electrons between hydrogen and chlorine ; three lone pairs on chlorine (making eight electrons on Cl ring);	**2**
14(b)	2 ; CuCl_2 ;	**1**
14(c)	copper is less reactive than <u>hydrogen</u> ;	**1**

Question	Answer	Marks
15(a)	volume ;	**1**
15(b)	y-axis labelled: time **or** s **and** x-axis labelled: temperature **or** ºC **and** ; negative gradient line ; approaching zero ;	**3**
15(c)	$W = Fd$ / 0.6×0.4 ; 0.24 (J) ;	**2**

Question	Answer	Marks
16(a)	any **one** from • plant has not been watered ; • placed in a hot environment ; • low humidity ; • wind ;	**1**
16(b)	any **two** from • loses turgidity become flaccid ; • cells / plants lose water ; • by transpiration ; • loss of support ;	**2**

Question	Answer	Marks
17(a)	U ; S ; T ; V ;	**4**

Question	Answer	Marks
18(a)	$F = ma$ / $m = 4.7 \times 10^{-14} \div 7.08 \times 10^{12}$; 6.6×10^{-27} (kg) ;	**2**
18(b)(i)	1.6×10^{-19} (C) ;	**1**
18(b)(ii)	1.6×10^{-19} (C) ;	**1**