

CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Ordinary Level

MARK SCHEME for the May/June 2013 series

5129 COMBINED SCIENCE

5129/22

Paper 2 (Theory), maximum raw mark 100

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.

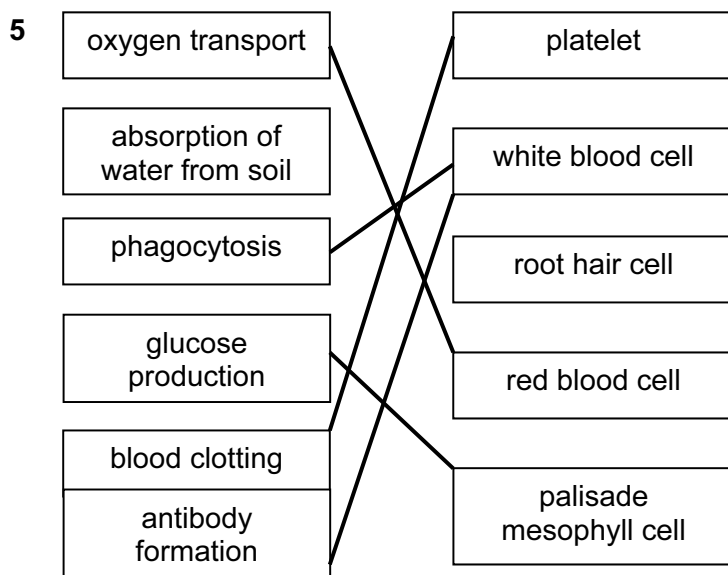
Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

Page 2	Mark Scheme	Syllabus	Paper
	GCE O LEVEL – May/June 2013	5129	22

- 1 (a) Chemical
Chlorophyll
carbon dioxide / CO_2 [3]
- (b) nitrogen / N_2 [1]
- 2 (a) 56 200 [2]
5.6 20 (divide by 10) [1]
3.33 (divide by 6) [1]
- (b) combination of metal and non-metal [1]
- (c) 78-80
20-22 (both required) [1]
- 3 (a) 26 [1]
- (b) density = mass/volume OR $20.8/26$ OR $20.8/(a)$ [1]
= 0.8 [1]
 g/cm^3 unit independent [1]
1.16 scores 1 out first two marks ($30.2/26$)
- 4 (a) (i) 1
(ii) 4 [2]
- (b) velocity has direction, speed does not/runner changes direction [1]
accept velocity is a vector / speed is a scalar
- (c) $a = F/m$ or $175/70$ [1]
= 2.5 [1]



two different lines from
one box loses that mark

[5]

Page 3	Mark Scheme	Syllabus	Paper
	GCE O LEVEL – May/June 2013	5129	22

- 6 (a) R.....S.....P.....Q [2]
one error gains one mark
- (b) (i) lighted splint [2]
explodes with pop
result is dependent on correct test
- (ii) SCl_2 [1]
- (c) $\text{ZnO} + \text{H}_2$ [1]
- 7 (a) $W = F \times s$ (or equivalent) OR 1700×2 [2]
 $= 3400$
- (b) chemical, [1]
gravitational potential/potential/gravitational and kinetic [1]
- 8 (a) horizontal arrow left **or** right [1]
- (b) (i) No. of oscillations **or** complete waves per second [1]
- (ii) $\lambda = c/f$ (v/f) OR $340/200$ [2]
 $= 1.7 \text{ m}$
- 9 (a) maltose/glucose [1]
- (b) amylase digested/broke down starch (to maltose/glucose) [2]
no starch present (to give black colour)
- (c) (i) B [1]
- (ii) tube A at lower temperature / tube B at higher temperature
allow correctly stated pair of numbers
amylase worked more slowly in A / more quickly in B [2]
- (iii) starch not digested / starch present [2]
amylase destroyed/denatured by high temperature

Page 4	Mark Scheme	Syllabus	Paper
	GCE O LEVEL – May/June 2013	5129	22

- 10 (a) (i)** A = steam/water/H₂O
 B = hydrogen/H₂
 C = oxidation [3]
- (ii)** D = carbon dioxide/CO₂
 E = water/H₂O [2]
- (b) (i)** drawn structure of ethanol [1]
- (ii)** solvent
 Perfumes
 fuel
 hand sterilisation } any one [1]
- 11 (a)** none [1]
- (b)** if current exceeds 3A
 fuse melts/circuit is broken [2]
- (c) (i)** 0.6 [1]
- (ii)** $P = VI$ OR $240 \times .25$
 = 60 [1]
 [1]
- 12 (a)** N S [1]
- (b) (i)** attracted [1]
- (ii)** repelled [1]
- 13 (a)** 8
 13
 17
 18 [4]
- (b)** drawn as 2, 6 [1]

Page 5	Mark Scheme	Syllabus	Paper
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- 14 (a) (i)** attract insects to flower (colour/smell) [1]
- (ii) production of pollen [1]
- (b) (i)** B
D [2]
- (ii) store of food/nutrients
accept example of stored nutrient (for developing plant embryo) [1]
- (c) (i)** wind
animals (stuck to fur of animals etc.)
seed buried as a food store by some animals
(moving) water
self dispersal } any 2 [2]
- (ii) moved away from parent plant
prevents competition (with others of same species)
can colonise new habitats } any 1 [1]
- (d)** 1 identical to parent 2; offspring dissimilar to parents; [2]
- 15 (a) (i)** air is a poor conductor/good insulator [1]
- (ii) convection (only) transfers heat upwards/hot air rises [1]
- (b)** matt black is better/good absorber/white is better reflector [1]
- (c)** microwave
radio [2]
- 16 (a) (i)** iron
- (ii) copper
- (iii) lead
- (iv) zinc [4]
- (b) (i)** mixture of metals [1]
- (ii) to change the properties
accept specific properties e.g. stronger [1]

Page 6	Mark Scheme	Syllabus	Paper
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- 17 (a) current produces magnetic field
magnet repelled [2]
- 18 (a) (i) externally administered chemical
modifies chemical reaction in the body [2]
- (b) (i) slows down nerve impulses/reaction times increase
co-ordination reduced/reduce muscle control
reduced rationality/loss of inhibition/aggression
reduced sensation of pain
dilation of blood vessels/lowered blood pressure
increased heart rate
blurred vision
slurred speech
increase urine production
intestinal/gastric problems
memory loss/ mental health problems/dementia
liver cirrhosis; } any 3 [3]
- (ii) heroin/cocaine/ecstasy/steroids/cannabis
accept any valid suggestion or current street name [1]
- 19 solution
insoluble
filtration
solute [4]