

CAMBRIDGE
INTERNATIONAL EXAMINATIONS

JUNE 2002

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK : 60

SYLLABUS/COMPONENT : 0653/2

**COMBINED SCIENCE
(CORE)**



UNIVERSITY of CAMBRIDGE
Local Examinations Syndicate

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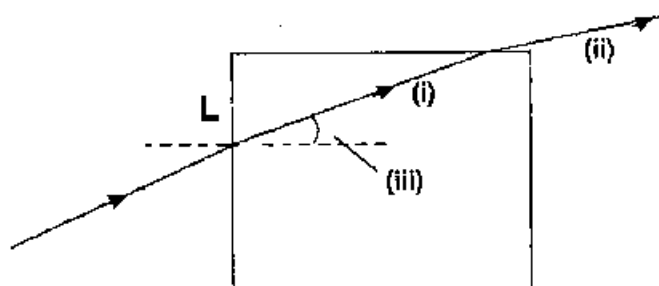
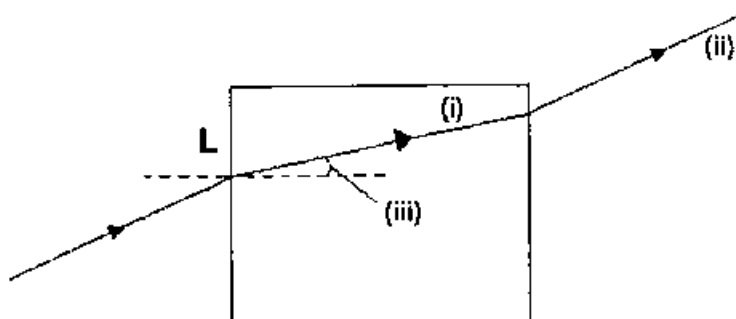
- 1(a) **A** left atrium / atria / auricle;
- B** (valve) tendon; 2
- (b)(i) **S** / pulmonary vein; 1
- (ii) **R** / aorta; 1
- (iii) left side should contain oxygenated blood / right side contains deoxygenated;
oxygenated and deoxygenated blood mix / blood from R and L sides mixes;
blood leaving through R is not completely oxygenated / less oxygenated blood is
carried to the body; 2max
- 2(a) K;
- S;
- Ne;
- Fe;
- I; 5
- (b)(i) gives out heat; 1
- (ii) components retain properties in mixture – compound has different properties/
fixed proportions of components in compound – any proportions in mixture/
particles of components separate in mixture – joined in compound /
mixture separable by physical means – compound by chemical; 1

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- 3(a) chemical/potential/stored;
kinetic/movement and;
heat/thermal; 3
- (b)(i) A and D ; 1
- (ii) constant speed ;
of 10m/s; 2
- (iii) (constant) deceleration; (accept slowing down) 1
- 4(a)(i) the place where something lives; 1
- (ii) all the organisms living in a particular place;
(reject anything which does not strongly indicate all) 1
- (b)(i) grasshoppers, beetles at end of existing arrows;
two arrows from grasses and stone plants to the g's and b's;
lizards and jackals correct; 3
- (ii) the direction of energy flow; 1
- (iii) grasses / stone plants; 1
- 5(a)(i) (carbon + oxygen) → carbon dioxide; 2
- (ii) larger surface area;
reaction is quicker increased burning efficiency / easier to light / more heat in
a shorter time / higher temperature achieved; 2
- (b)(i) iron;
- (ii) air/oxygen;
water (vapour); 2
- (penalise formulae instead of name once only in the question)*

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- 6(a) (ii) needs to be reasonably parallel to incident ray
OR (ii) just needs to bend the correct way



3

- (b) $V = I \times R;$
 $R = 12/2;$
 $= 6 \Omega;$

3

(reject any odd symbols which normally mean other things)
(if formulae wrong there are no errors carried forward so no marks)
(if answer only is given award only one mark i.e. there should be working shown)
(if answer does not follow from working do not give the answer mark)

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- 7(a) **B;** 1
- (b) sulphur dioxide dissolves in / reacts with rain;
rain becomes acidic / produces H_2SO_4 / any reasonable ref. to acidity;
acidic rain reacts with/dissolves stonework; 2max
(reject vague refs. such as wears away, erodes)
(reject SO_2 reacting directly with the stone without ref. to water or rain)
(reject SO_2 mixing with rain / clouds)
- (c)(i) (CO from) burning fuel/hydrocarbons (in vehicles) /
CO contained in exhaust gases/; 1
(need strong implication that CO from processes occurring in the car
- (ii) poisonous (to humans) description of CO action in blood; 1
(accept vaguer terms such as harmful if linked directly to humans)
- (d)(i) argon is unreactive / inert; 1
- (ii) eighteen electrons;
arranged 2 . 8 . 8; 2
- 8(a) cell (surface) membrane;
controls what enters and leaves the cell; 2
- (b) contains food / nutrients (for the developing zygote); 1
- (c)(i) oviduct / fallopian tube / egg tube; 1
- (ii) 46; 1
- (d) diffusion;
through placenta;
from mother's blood; 2max

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- 9(a) (considerably) reduced; 1
- (b) **A** alpha;
stopped by paper / has the lowest penetrating power of the three;
- B** gamma;
only partially stopped by lead / has the highest penetrating power of the three; 4
- (c) reference to background radiation; 1
(accept any reasonable answer which means that radiation is coming from anywhere other than the sources)