

**CAMBRIDGE**  
INTERNATIONAL EXAMINATIONS

**NOVEMBER 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) B - battery /cells /cell ;  
C - switch; 2
- (b) correct symbol for ammeter;  
in series with lamp;  
*(ignore missing variable resistor)* 2
- (c) amperes (accept amps); 1
- (d) socket overloaded / would overheat;  
break in insulation;  
reference to consequence e.g. shock / fire;  
*(accept loose wire on the "white" cable cable clips missing)* 2max
- 2(a) gas given off ;  
oxygen ;  
*(accept left with the water only if clear implication of O<sub>2</sub> gone)*  
*oxygen is released (into atmosphere) scores 2* 2
- (b) faster rate of reaction / higher frequency of (relevant) collisions;  
when liver has larger surface area : 2
- (c) mass would not change / there would be no reaction / nothing would happen;  
catalase / enzyme, denatured / destroyed / deformed / broken down; 2
- 3(a) Q  
P  
S::: 3
- (b)(i) R; 1
- (ii) oil is too complex a mixture / properties not fit for any single purpose,  
(crude) oil not useful (without processing);  
fractional distillation separates useful substances from oil / owtte;  
individual substances are important / named correct example of a fraction and its  
use: 2max

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- 4(a)(i) (something) vibrating; 1
- (ii) sound travels through medium/air;  
by (a series of) vibrations/ compressions and rarefactions;  
*by air (molecules) vibrating scores 2* 2
- (b) sound waves need medium / cannot be transmitted if no air;  
no air on the moon / in space;  
radio waves do not need medium/ can travel through vacuum; 2max
- 5(a) P to roots ;  
Q to flower ; 2
- (b)(i) chlorophyll ; 1
- (ii) changed to starch ;  
and stored / saved ;  
*(glucose stored scores 1)* 2
- (c) dye taken up / absorbed / by diffusion (but not directly into leaf);  
into the xylem / transported in xylem / and coloured the xylem;  
into vascular bundles / veins in leaves ;  
*(ignore any references to the mechanism of osmosis)* 2 max
- 6(a)(i) compound;  
made of hydrogen and carbon (only);  
*(mixture of H and C = 0)*  
*(compound made of H and C molecules = 1)* 2
- (ii) poly(ethene) made from linked ethene molecules;  
reference to long chain molecule compared to single unit;  
poly(ethene) molecule contains many more atoms than ethene;  
*(reject simple reference to bigger molecule)* 2max
- (b) oxygen required for burning;  
reference to removal of air / oxygen;  
reference to the water cooling the fire; 2

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7(a)	D ; B ; F ;	3
(b)	oviduct / fallopian tube ; zygote ;	2
(c)	using a condom / sheath / femidom; abstinence / avoiding infected partner;	2
8(a)	10000;	1
(b)	4.5;	1
(c)	density = mass/volume; =10000/4.5; =2222; <i>(ignore any recurring decimals and allow ecf from (a))</i>	3
(d)	work = force x distance; = 100,000 x 140; = 14,000,000; <i>(allow ecf from (a))</i>	3
9(a)(i)	B; A; C;	3
(ii)	limewater; cloudy;	2
(b)(i)	increases/goes up/gets higher; <i>(reject it goes neutral)</i>	1
(ii)	nickel sulphate + water;;	2