

NOVEMBER 2002

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK : 60

SYLLABUS/COMPONENT : 0653/2

**COMBINED SCIENCE
(CORE)**



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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 O₂ 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

- 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;
(ignore any recurring decimals and allow ecf from (a)) 3
- (d) work = force x distance;
= 100,000 x 140;
= 14,000,000;
(allow ecf from (a)) 3
- 9(a)(i) B;
A;
C; 3
- (ii) limewater;
cloudy; 2
- (b)(i) increases/goes up/gets higher;
(reject it goes neutral) 1
- (ii) nickel sulphate + water;; 2