

JUNE 2002

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK : 60

SYLLABUS/COMPONENT : 0652/2

**PHYSICAL SCIENCE
(CORE)**



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1. (a) (i) Two rays continuing from originals hitting the spot 1
- (ii) Focal length 1 2
- (b) Energy from/rays of sun are concentrated / *small area* 1
~~on a small area~~ / so it gets hot +1 2

Total 4

2. Number of bonds: 4 1
Number of bonds: 3 1
- Description diamond; three dimensional/ tetrahedral/
all strong bonds 1
- Description of graphite; two dimensional/ layered/
strong bonds in layers/ weak bonds between layers 1
NOT a property nor a use

Total 4

3. (a) (i) Due to Earth's magnetic field 1
- (ii) North (seeking) pole 1
- (iii) Compass 1 3
- (b) (i) Any metal except iron/steel*/cobalt/nickel. *or reactive metals* 1
eg Sodium
- (ii) Iron/steel*/cobalt/nickel 1
- (iii) Steel* 1
(* Except stainless!)

- (iv) They would attract 1 4

Total 7

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4. (a)	Universal Indicator (paper) <i>(accept red Ans like litmus)</i>	1	
	goes green <i>(stays same)</i>	1	2
(b)	warm the solution	1	
	leave to cool	1	2
			Total 4
5. (a)	Line(s) showing circulation (as in convection)	1	
	Good	+1	2
(b) (i)	Convection	1	
(ii)	Conduction	1	
(iii)	Radiation	1	3
(c) (i)	Hot air rises (not heat rises) (up the stairs)	1	
	supplying more oxygen	+1	2
			Total 7
6. (a)	same number of protons or electrons/ same atomic (proton number)	1	
	different number of protons or electrons/ different number of neutrons (Neutron number).....	1	2
(b)	solution goes red (range according to concentration).....	1	
	chlorine goes to chloride ions		
	iodide ions go to iodine		
	chlorine is more reactive than iodine		
	chlorine oxidises iodide ion etc.		
	ANY TWO VALID COMMENTS	1 + 1	3
			Total 5

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7. (a)(i)	3.8	1	
	N	1	2
(ii)	Moment = Force x distance OR attempt to multiply force or mass by distance	1	
	76 Ncm or ecf	1	2
(b)	Density = Mass/Volume or attempt to put in figures	1	
	Rearrangement of equation to give volume	1	
	Volume = 20 cm ³	1	3
(c)	Bottom of series/ low reactivity	1	1
			Total 8
8. (a)	Safety precaution liquid might overflow & ignitor vapour might ignite ANY TWO VALID COMMENTS	1 + 1	2
(b) (i)	cooling	1	
	solidifying	1	
	exothermic	1	
(ii)	37 °C	1	
(iii)	single melting temperature	1	
(iv)	room temperature	1	6
			Total 8

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9. (a) (i)	Any comment linking energy to ability to do work	1	
(ii)	joule OR J.....	1	2
(b) (i)	Heat/Thermal.....	1	
(ii)	friction	1	2
			<i>Total 4</i>

10. (a)	Hydrogen is less dense than air (^{except} NOT lighter)	1	
	rises/stays in test tube/ or valid comment	1	2
(b) (i)	Lighted splint (not glowing)	1	
	pops/explodes	1	
(ii)	$2\text{H}_2 + \text{O}_2 \longrightarrow 2\text{H}_2\text{O}$ all formulae correct	1	
	then balanced	1	4
(c) (i)			
	correct shared pairs of electrons	1	
	correct numbers of outer electrons	1	
(ii)	covalent	1	3
			<i>Total 9</i>