



*Rewarding Learning*

**General Certificate of Secondary Education  
2011–2012**

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**Science: Single Award (Modular)**

Electricity, Waves and Communication

Module 5

Foundation Tier

[GSC51]

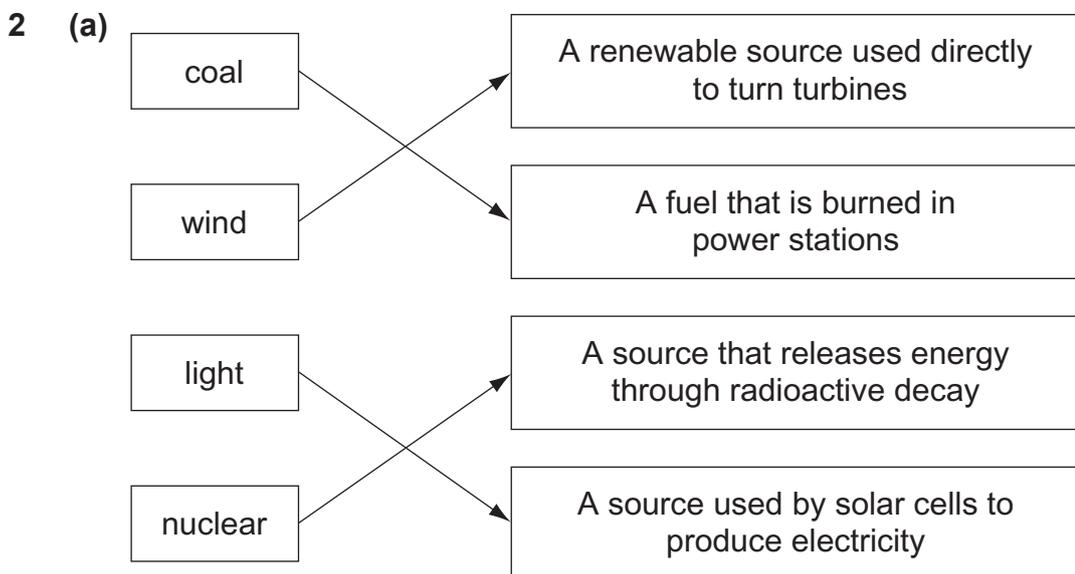
**THURSDAY 24 MAY 2012**

**9.15 am–10.00 am**

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**MARK  
SCHEME**

- 1 (a) bulbs are brighter/one out, rest stay lit/bigger current flowing/easier to replace blown bulb/more bulbs could be lit/all have battery voltage (any 2 = 1 mark each) [2]
- (b) (i) 6V [1]
- (ii) brighter/increase [1]
- (iii) bigger current/bigger voltage/hotter bulbs/more power more energy (any 2 = 1 mark each) could blow *NOT* more electricity will fuse/blow up [2]
- (c) (i) ammeter [1]
- (ii) amp [1]



All lines correct = 3 marks  
 2/3 correct = 2 marks      1 correct = 1 mark [3]

- (b) (i) 44p [1]
- (ii) from May 07 to Jan 08 [1]
- (iii) will run out/cannot be replaced *NOT* can't be used again [1]
- (iv) carbon dioxide/greenhouse gases/air pollution/sulphur dioxide causes global warming/greenhouse effect/acid rain *NOT* wrong symbol [2]

AVAILABLE MARKS

8

8

			AVAILABLE MARKS	
<b>3</b>	<b>(a)</b>	<b>(i)</b> $6 \times 3$ [1]      18 [2]      [2]	7	
		<b>(ii)</b> watt      [1]		
	<b>(b)</b>	<b>(i)</b> cancer/tumour      [1]		
		<b>(ii)</b> hold phone further away/loudspeaker/phone not under pillow hands free kit/text instead of calling/ reduce length of calls <i>NOT</i> use phone less      [1]		
		<b>(c)</b>		
<b>(i)</b> B      [1]				
	<b>(ii)</b> (read) processed by computers/less interference/clearer/better quality <i>NOT</i> better signals/more accurate/more reliable/more information      [1]	7		
<b>4</b>	<b>(a)</b>	<b>(i)</b> retina      [1]	7	
		<b>(ii)</b> cornea      [1]		
		<b>(iii)</b> bend/change direction      [1]		
	<b>(b)</b>	concave diverges/spread rays out      [2]		
		<b>(c)</b>		<b>(i)</b> short sight      [1]
				<b>(ii)</b> too thick/too converging/too strong      [1]
<b>5</b>	<b>(a)</b>	$120/0.8$ [1] $240/0.8$ or $120/0.4$ [2]      [3]	8	
		300 [3]		
	<b>(b)</b>	<b>(i)</b> (sound with a) frequency [1] too high for humans to hear/above 20 kHz [1]      [2]		
		<b>(ii)</b> scanning/fish finding/cleaning delicate equipment/lithotripsy/ map seabed/dog training/mosquito      [1]		
	<b>(c)</b>	<b>(i)</b> transverse      [1]		
		<b>(ii)</b> (caused by) vibrations/carry energy      [1]		

- 6 (a) 6.8p [1]
- (b) renewables cost more to build/have cheaper fuel costs  
cost more to run/total cost is more  
(any 2 = 1 mark each) [2]
- (c) power station is shut down/waste removed  
site restored to former state (any 2 = 1 mark each)  
expensive to get rid of waste  
waste is radioactive for a long time/concrete over/no radiation leaks [3]
- (d) ruins habitats/eyesore = ugly/inhibits shipping lanes/not many suitable  
areas [1]

**Total**

**AVAILABLE  
MARKS**

7

**45**