



Rewarding Learning

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

Science: Single Award (Modular)

Electricity, Waves and Communication

Module 5

Higher Tier

[GSC52]

MONDAY 14 NOVEMBER

1.30 pm–2.15 pm

**MARK
SCHEME**

			AVAILABLE MARKS	
1	(a)	all points correct [2] 6/5 points correct [1] correct line [1]	[3]	9
	(b) (i)	<i>increasing magnet speed</i> gives more current [1] up to a maximum current [1]	[2]	
	(ii)	1. less current 2. more current	[1] [1]	
	(c)	produce light even when stopped/go fast for bright light/ slow will be dim light [1] safer [1] or implied	[2]	
2	(a)	In summer UV level is above 3 or implied	[1]	6
	(b) (i)	particles vibrate at right angles/particles move up and down [1] [2] to the direction of wave travel [1]	[2]	
	(ii)	Any two from: all carry energy/can travel through a vacuum/same speed in vacuum/speed of light	[2]	
	(iii)	longitudinal	[1]	
3	(a)	frequency [1] above 20 khz/too high to be heard by human ear [1]	[2]	7
	(b)	330×0.04 [1] 330×0.02 [2] 6.6 [3]	[3]	
	(c)	safer [1] or implied less damage to cells/less risk of cancer [1]	[2]	
4	(a)	chemical to heat [1] heat to kinetic [1] kinetic to electric [1] not electricity	[3]	5
	(b)	less carbon dioxide/greenhouse gases/air pollution/less fossil fuels used [1] less greenhouse effect/global warming [1]	[2]	
5	(a) (i)	volume control turned from 10 to 0 = more resistance wire [1] more wire = higher resistance [1] higher resistance = less current [1] longer wire = less current	[3]	7
	(ii)	type of material [1] width of wire [1]	[2]	
	(b)	$30/230$ [1] 0.13 [2]	[2]	

- 6 (a) (i) Cause = lens too weak/thin/eyeball too short [1]
 Effect = light not converged enough [1]
 Focused behind retina [1]
 Close objects blurry/far objects clear [1] } Any **two** from [3]
- (ii) convex lens [1]
 converge light more [1]
 clear image formed on retina } [1]
 light focused on retina [1] [3]
- (b) (i) uneven curvature of cornea [1]
- (ii) crossed lines [1] some appear thicker [1] [2]
- (c) Above critical angle/42° [1]
 TIR occurs [1] [2]

Total

AVAILABLE
MARKS

11

45