



Rewarding Learning

**General Certificate of Secondary Education
2010–2011**

Science: Single Award (Modular)
Electricity, Waves and Communication

Module 5

Foundation Tier

[GSC51]

FRIDAY 20 MAY 2011, MORNING

**MARK
SCHEME**

			AVAILABLE MARKS		
1	(a) (i)	visible light	[1]	7	
	(ii)	x-rays	[1]		
	(iii)	electromagnetic	[1]		
	(b)	1 + 5 ([1] each)	[2]		
	(c) (i)	The higher the frequency of a wave, the more energy it has.	[1]		
	(ii)	hertz	[1]		
2	(a) (i)	correct symbol = [1] in parallel across A = [1]	[2]		11
	(ii)	brighter/hotter = [1] + more volts/voltage = [1] electricity/current power/energy	[2]		
	(iii)	other bulb goes out = [1] gap in circuit/current doesn't flow = [1]	[2]		
	(b)	$\frac{6}{2} = [1]$ $3 = [2]$	[2]		
	(c)	wire melts/breaks/blows/burns out/current cut off	[1]		
	(d)	cable grip/plastic insulated cover/earth pin <i>longer</i> not plastic cover on wire (x) any 2	[2]		
3	(a) (i)	$5 \times 2 = [1]$ $10 = [2]$	[2]	7	
	(ii)	watt	[1]		
	(b) (i)	cancer/tumour	[1]		
	(ii)	speaker phone/text/hands free/hold further away [1] shorter time for call [1] use less often (x)	[2]		
(c)	less interference/processed by computer clearer/(signal)	[1]			
4	(a) (i)	convex/converging	[1]	5	
	(ii)	to converge/bend/refract light = [1] to form a focus clear image on the retina = [1]	[2]		
	(b) (i)	short sight	[1]		
	(ii)	far objects are blurry; near objects are clearer	[1]		

			AVAILABLE MARKS
5	<p>(a) (i) transverse [1]</p> <p>(ii) The vibrations are at right angles to the direction of the wave. [1]</p> <p>(b) (i) 4 cm [1]</p> <p>(ii) 6 cm [1]</p> <p>(c) (i) see – hear appropriate timing large distance formula } any three [3]</p> <p>(ii) accurate: ensure time started when blocks banged; stopwatch/ same person increased distances = [1] reliable: repeat/average = [1] [2]</p>		9
6	<p>(a) 4500 [1]</p> <p>(b) wind; less amount of land; electricity produced; intermittent/unreliable hydroelectric – lack of sites/cost/flooding [2]</p> <p>(c) (i) 12500 [1]</p> <p>(ii) no/less greenhouse gases/carbon dioxide/air pollution/ [1] no/less global warming/ [2]</p> <p><i>or</i> less sulphur dioxide/carbon dioxide [1] less acid rain [1]</p>		6
Total			45