



Rewarding Learning

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

Science: Single Award (Modular)

Road Safety, Radioactivity
and Earth in Space

Module 6

Higher Tier

[GSC62]

FRIDAY 20 MAY 2011, AFTERNOON

**MARK
SCHEME**

			AVAILABLE MARKS
1	(a) Heat	[1]	7
	(b) (i) how good a device is at transferring energy/changing energy	[1]	
	(ii) 5/25 [1] 0.20/20% [2]	[2]	
	(c) They require less electrical energy; fewer fossil fuels are burnt to produce electricity; less carbon dioxide produced/less global warming/less greenhouse effect.	[3]	
2	(a) (i) 2129/2130	[1]	7
	(ii) Don't know exactly what reserves are left/find more; we can't calculate how much countries are going to use each year.	[2]	
	(b) (i) Provide jobs/provide cheaper fuel/don't have to import.	[1]	
	(ii) Damage to habitats/visual pollution/dust pollution/noise pollution/loss of farmland.	[1]	
	(c) Dead plants and animals; compressed or squashed over millions of years.	[2]	
3	(a) 1 – Higher the alcohol level the more chance of crashing 2 – the older you are the less chance you have of crashing with the same amount of alcohol in the system as a younger person.	[2]	9
	(b) Increases thinking time/slower reactions; which increase overall stopping distance.	[2]	
	(c) Some foods/medicines contain alcohol.	[1]	
	(d) (i) C; it has the greatest <i>mass</i>	[2]	
	(ii) 198 000/16 500 [1] 12 m/s	[2]	
4	(a) Stops radiation; less danger to staff.	[2]	10
	(b) Time it takes; for the radiation count/radioactivity to fall by half	[2]	
	(c) (i) Test lasts for 2 hours	[1]	
	(ii) Six weeks may cause damage to body cells	[1]	
	(d) Has to be replaced often	[1]	
	(e) 5 points correctly plotted [2] 4 points correctly plotted [1] Smooth curve [1]	[3]	

- 5 (a) distance = 12 m [1]
 12/0.5 [2]
 24 m/s [3] [3]
- (b) infringement against personal liberty; Government use them to make money. [2]
- (c) More chance of a conviction; they can see who is driving the car. [2]
- 6 (a) As the distance from Earth increases so does the velocity of the galaxy. [1]
- (b) Universe started as a single point/singularity [1]. Universe was created from a large explosion in which energy and elementary particles were formed [1]. After millions of years gravity pulled this matter together to eventually form stars and galaxies [1] max [3]
- (c) Steady State theory [1]

Total

AVAILABLE MARKS

7

5

45