



Rewarding Learning

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

Science: Single Award (Modular)

Road Safety, Radioactivity
and Earth in Space

Module 6

Foundation Tier

[GSC61]

MONDAY 14 NOVEMBER 2011

2.30 pm–3.15 pm

**MARK
SCHEME**

- 1 (a) 8 [1]
- (b) (i) Neptune/Mars/Jupiter
Further from the Sun (allow with incorrect name) [2]
- (ii) Jupiter [1]
- (c) (i) The planet's size [1]
- (ii) Newton [1]
- (d) Rock; Comets [2]
- 2 (a) Proton Neutron [2]
- (b) 1 Beta
2 Alpha
3 Gamma
3 = 2 marks 1/2 correct – 1 mark [2]
- 3 (a) (i) No grip; increased braking/stopping distance
Ice reduces friction [2]
- (ii) Any **two** from:
Seatbelt;
Crumple zone;
Air bag [2]
- (b) 1200/100 1 mark
12 m/s [2]
- (c)
- | | |
|-------------|---|
| worn brakes | |
| tiredness | ✓ |
| wet roads | |
| alcohol | ✓ |
| worn tyres | |
- [2]
- (d) (i) 14
96 [2]
- (ii) Distance taken for the car to stop once the brakes are applied. [1]

AVAILABLE
MARKS

8

4

11

			AVAILABLE MARKS			
4	(a) (i)	Ethanol/biodiesel	[1]	6		
		(ii) To conserve fossil fuels (or implied)	[1]			
	(b)	Lignite/brown coal	[1]			
	(c)	compressed; Over millions of years	[2]			
	(d)	Oil	[1]			
5	(a) (i)	Above/More than; Action level [2] More than/Above 200 [1]	[2]	10		
		(ii) Damage (living) cells/D.N.A; Cause cancer	[2]			
	(b) (i)	3.8 days	[1]			
		(ii) 7.6 days or consequential marking	[1]			
	(c)	combinations of protons and neutrons [1] unstable [1]	[2]			
	(d)	radiation kills microbes; increase shelf life/ keep fresh longer	[2]			
	6	(a)	Clouds of hydrogen gas; Pulled together by gravity; Nuclear fusion takes place		[3]	6
		(b)	The distance; Light travels in 1 year		[2]	
(c)		Radio telescopes/ref. to radio signal	[1]			
			Total	45		