# **Practical Electricity**

### **Question Paper 2**

Level	Edexcel
Subject	Physics
Exam Board	GCSE(9-1)
Topic	Electricity & Circuits
Sub Topic	Practical Electricity
Booklet	Question Paper 2

Time Allowed: 45 minutes

Score: /38

Percentage: /100

### The power of television

1	Modern tele	evisions use small amounts of power.	
	(a) Which	of these describes power?	
	Put a cr	ross (⊠) in the box next to your answer.	(1)
	⊠ A	distance travelled per second	(1)
		energy transferred	
		energy transferred per second	
	⊠ D	work done	
		ision is connected to the 230 V mains. t is switched on, the current in the television is 0.25 A.	
	(i) Cald	culate the power consumption of the television when it is switched or	
			(2)
		power consumption =	W
	(ii) Des	scribe what is meant by <b>current</b> .	
	(ii) Des	cense what is meant by carrein.	(2)

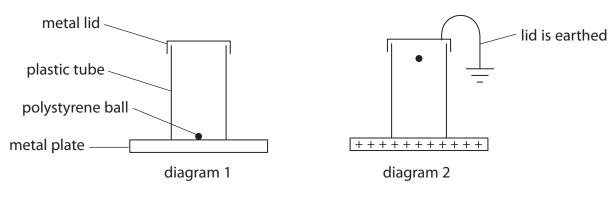
(c) When the television is switched to standby, the power consumption falls to 0.5 W		
(i) State how this changes the current in the television.	(1)	
(ii) The cost of electricity is 26p per kW h.		
Show that the cost of leaving the television on standby for 48 hours is less than 1p.	(3)	
(iii) It is cheaper to switch the television off instead of leaving it on standby.		
Suggest another reason why it is better not to leave the television on standby	(1)	
(Total for Question 4 = 10 ma	arks)	

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#### **Electrostatics**

A light, polystyrene ball is coated with a thin layer of metal.Diagram 1 shows the ball on a metal plate.In diagram 2, the plate has been charged and the ball is rising to hit the earthed lid.



(a) (i) State the sign of the charge on the ball as it moves upwards.

(1)

(ii) Explain why the ball moves upwards. (2)

(b) The ball discharges when it hits the earthed lid.

Explain how the ball loses its charge.

(2)

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(c) The ball continues to move up and down between the charged plate and the earthed lid.

Explain why the ball continues to move up and down.

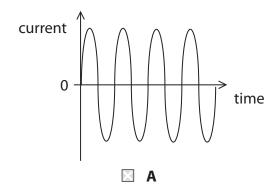
(2)

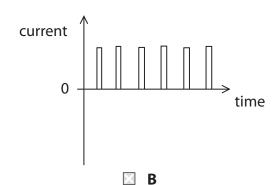
(d) The current in the wire connected to earth may be described by a graph.

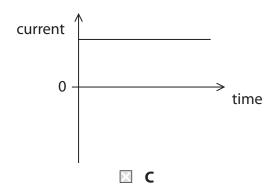
Which of these graphs best shows the current in the earth wire?

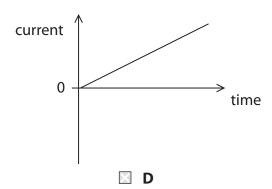
Put a cross (☒) in the box next to your answer.

(1)









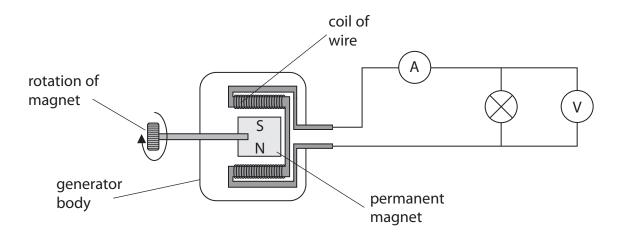
(Total for Question 2 = 8 marks)

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#### The generation of electricity

**3** (a) The diagram shows a simple generator connected to a lamp.



The magnet is made to spin at a steady speed. The ammeter gives a reading of 1.5 A. The voltmeter gives a reading of 6 V.

(i) Calculate the output power of the generator.

output power = .....W

(ii) State two changes to the design of the generator that would give a larger output power for the same speed of rotation.

(2)

(2)

**1** \_\_\_\_\_\_

2 ......

(iii) This generator supplies an alternating current (AG) to the lamp.  Other types of generators supply a direct surrent (DG) www.savemyexams.co.uk/  Describe the difference between charge movement in a direct current and in an alternating current.	(2)
*(b) The first public power station was built in the centre of New York.	
It used generators to supply direct current at 110 V. The cables had to go underground and they could only supply nearby shops and offices.	
The electricity was mainly used for electric light.	
The development of alternating current generators led to major changes in the way electricity is transmitted and used.	
Compare the modern National Grid system with the early system in New York.	(4)
	(6)
(Total for Question 6 = 12 mag	arks)

### **Charge and Current**

4

A bat	tery	sends a current through a metal wire.	
(a) (i)	Со	mplete the sentence by putting a cross ( $\boxtimes$ ) in the box next to your answer.	
	Dir	rect current is movement of charge	(4)
X	Α	backwards and forwards	(1)
×	В	in many directions	
×	C	in one direction	
×	D	up and down	
(ii)		mplete the sentence by putting a cross (⊠) in the box next to your answer. e particles that flow in the metal wire are	(4)
×	Α	atoms	(1)
$\times$	В	electrons	
$\times$	C	protons	
X	D	neutrons	
		arrent in a wire is 3.7 A.  ate the charge that flows into the wire in 13 s.	(2)
		charge.	
		charge =	C

(Total for Question 1 = 8 marks)		
		-
	Describe the charge on the cloth.	(2)
	(ii) The cloth is also charged when it rubs against the plastic.	
	(i) Explain how the plastic is charged by the rubbing.	(2)
	This gives the plastic a negative charge.	
	A student rubs a piece of plastic with a cloth.	
(c)	Plastic is an insulator.	