



**GAUTENG PROVINCE**  
EDUCATION  
REPUBLIC OF SOUTH AFRICA

**GAUTENG DEPARTMENT OF EDUCATION  
PROVINCIAL EXAMINATION  
2015  
GRADE 6**

**NATURAL SCIENCES AND  
TECHNOLOGY**

**NAME OF LEARNER:** \_\_\_\_\_

**GRADE 6:** \_\_\_\_\_

**MARKS: 50**

**TIME: 90 minutes**

**10 pages**

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**INSTRUCTIONS AND INFORMATION**

1. This question paper consists of SECTION A, SECTION B and SECTION C based on the prescribed content framework in the CAPS document.

**SECTION A: COGNITIVE LEVEL 1**

QUESTION 1: Electrical systems, mains electricity, astronomy

QUESTION 2: Electrical systems, astronomy

QUESTION 3: Electrical systems, astronomy

QUESTION 4: Electrical systems, astronomy

QUESTION 5: Electrical systems

**SECTION B: COGNITIVE LEVEL 2**

QUESTION 6: Astronomy

QUESTION 7: Electrical systems, mains electricity

QUESTION 8: Design process, astronomy

**SECTION C: COGNITIVE LEVEL 3**

QUESTION 9: Electrical systems,

QUESTION 10: Mains electricity

2. Answer ALL THREE sections completely.
3. When answering questions, candidates must apply their knowledge, skills and insight.
4. ALL questions must be answered on the question paper.
5. Write neatly and legibly.

**SECTION A  
MULTIPLE-CHOICE QUESTIONS****QUESTION 1**

Draw a circle around the letter of the correct answer.

1.1 What is the symbol for a battery?



(1)

1.2 Chemical energy can be found in the ... .

- A bulb.
- B switch.
- C cell.
- D circuit.

(1)

1.3 Insulators are usually ... .

- A metals.
- B switches.
- C wool.
- D non-metals.

(1)

1.4 A ... is turned to generate electricity.

- A non-metal
- B cooling tower
- C condenser
- D turbine

(1)

1.5 It takes the earth ... days to orbit the sun once?

- A 360
- B 365
- C  $365\frac{1}{4}$
- D  $365\frac{1}{2}$

(1)

**(5)**

**QUESTION 2  
TRUE OR FALSE**

Read the statement below and decide if it is true or false. Draw a circle around T for True and F for False.

2. 1      A battery is a collection of electrical cells.      T F (1)
2. 2      Metals are usually good conductors of electricity.      T F (1)
2. 3      Fossil fuels were formed in the earth's crust over thousands of years.      T F (1)
2. 4      Pluto is the smallest planet in our solar system.      T F (1)
2. 5      Hydro-electricity is considered a renewable source of energy.      T F (1)
- (5)**

**QUESTION 3  
GIVE ONE WORD**

Read the sentence and choose one word to explain it.

- 3.1      The pathway of a celestial body around a star  
\_\_\_\_\_ (1)
- 3.2      A material through which an electricity current can flow  
\_\_\_\_\_ (1)
- 3.3      Attraction between the sun and a planet  
\_\_\_\_\_ (1)
- 3.4      The layer of gas around a planet  
\_\_\_\_\_ (1)
- 3.5      The four furthest and largest planets  
\_\_\_\_\_ (1)
- (5)**

**QUESTION 4**  
**MATCHING ITEMS**

Match the word in Column A with the sentence in Column B. Write the letter in Column C.

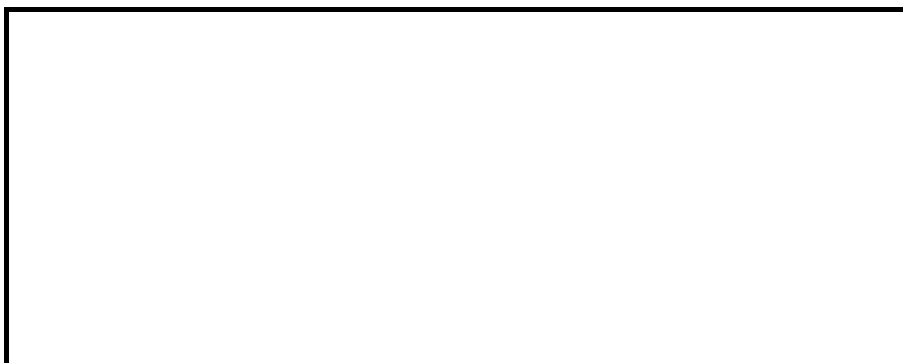
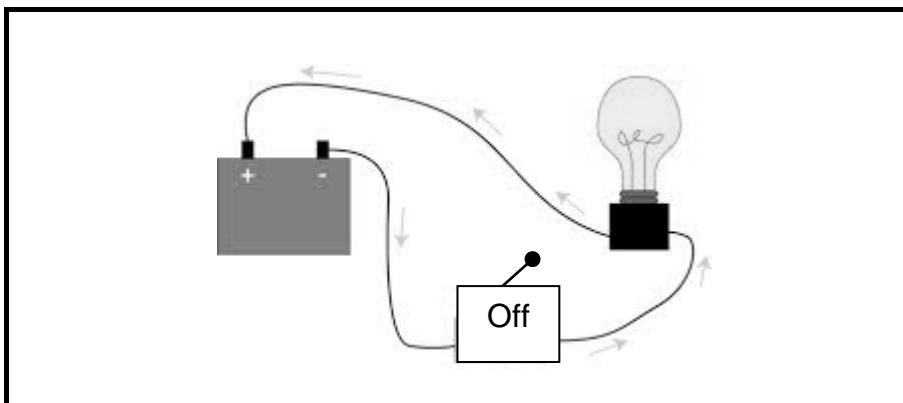
Example: 4.6 Earth \_\_\_\_\_ is the only planet with life. 4.6 = H (earth)

	Column A	Column B	Column C
4.1	A Energy	1. A ... cannot carry a flow of electricity	4.1 =
4.2	B Cell	2. ... is the largest planet in our solar system.	4.2 =
4.3	C Venus	3. ... is also known as the evening star.	4.3 =
4.4	D Switch	4. Electricity is a form of ... .	4.4 =
4.5	E Jupiter	5. ... is a source of energy.	4.5 =
	F Conductor		
	G Insulator		

(5)

**QUESTION 5**

Look at the picture below. Draw a circuit diagram using the correct symbols, according to this picture.



(5)

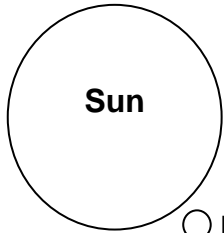
TOTAL SECTION A: 25

P.T.O.

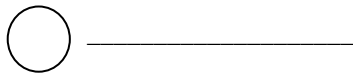
**SECTION B**

**QUESTION 6**

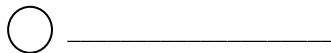
Write the names of the missing planets in the spaces provided.



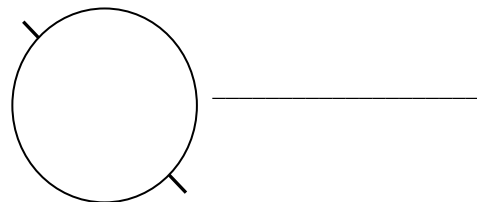
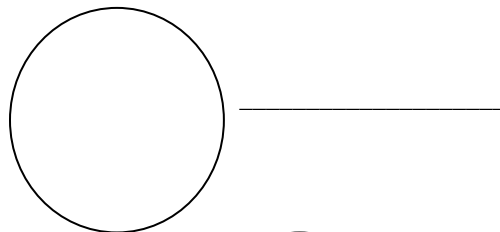
○ Mercury



○ Earth



**OUR SOLAR SYSTEM**



○ Uranus



**(5)**

**QUESTION 7**

Choose any TWO electrical appliances. Give the name of the appliance (Column 1). What do we use it for? (Second column) In the "From" and "To" columns what type of energy is changed and to what is it changed?



Name of appliance	What do we use it for?	Energy conversion	
		From	To
7.1			
7.2			

(8)

**QUESTION 8**

You are given an opportunity to visit the moon. You are expected to design a four-wheeled vehicle to assist you when travelling on the surface of the moon.

**Rewrite the correct sequence of the design process in the table below.**

<b>PROCESS</b>	<b>ANSWER</b>
Communicate	8.1
Make	8.2
Investigate	8.3
Evaluate	8.4
Design	8.5

(5)

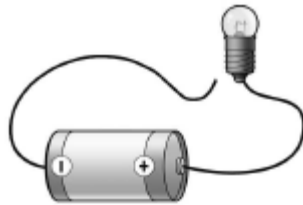
**TOTAL SECTION B: 18**



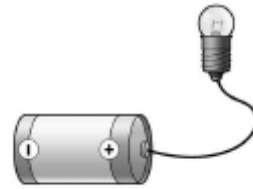
**SECTION C**

**QUESTION 9**

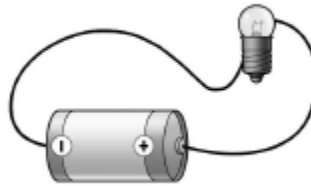
Carefully study the three diagrams (9.1–9.3) below. The electrical circuits are not working. Give a reason why the bulbs do not light up in each diagram. Write your answers at 9.1–9.3.



**9.1**



**9.2**



**9.3**

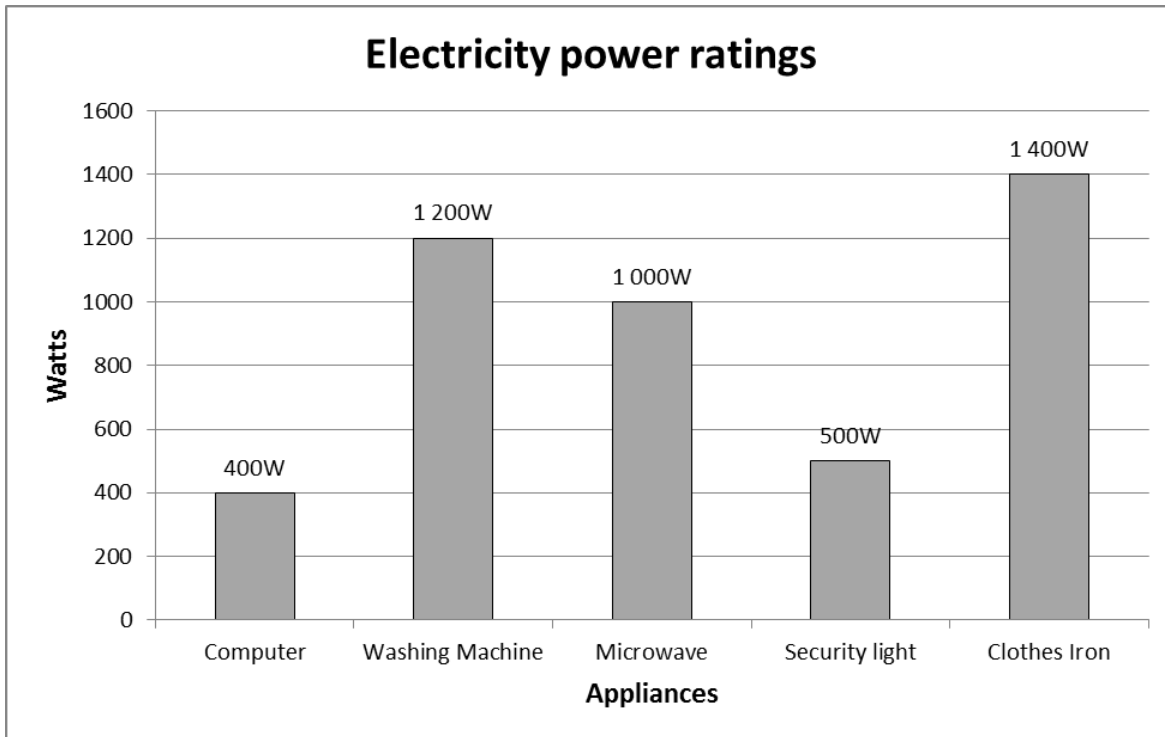
9.1
9.2
9.3

**(3)**

**QUESTION 10**

Read the passage below and answer the questions that follow.

Mr and Mrs Smith live in a suburb called Modder East. They live in a comfortable house. They use a variety of electrical appliances as shown in the graph below. Their electricity bill is very high.



- 10.1 Identify the appliance that uses the most electricity.  
\_\_\_\_\_ (1)
- 10.2 Identify the appliance that uses the least electricity.  
\_\_\_\_\_ (1)
- 10.3 What is the total power rating (in Watts) of **all** the appliances used in the house?  
\_\_\_\_\_ (1)
- 10.4 What is the total power usage of the security lights?  
\_\_\_\_\_ (1)

**TOTAL SECTION C: [4]**

**TOTAL: 50**

**END**