



GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

**GAUTENG DEPARTMENT OF EDUCATION
PROVINCIAL EXAMINATION
NOVEMBER 2018
GRADE 6**

**NATURAL SCIENCES AND
TECHNOLOGY**

DISTRICT	
SCHOOL NAME	
EMIS NUMBER	
CLASS (e.g. 6A)	
SURNAME	
NAME	

GENDER:	BOY	<input type="checkbox"/>	GIRL	<input type="checkbox"/>
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TIME: 1½ hours

MARKS: 50

10 pages

P.T.O.

**GAUTENG DEPARTMENT OF EDUCATION
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NATURAL SCIENCES AND TECHNOLOGY

TIME: 1½ hours

MARKS: 50

INSTRUCTIONS

1. Answer ALL the questions.
2. Write neatly and legibly.
3. Read all the instructions before answering the questions.
4. All questions must be answered on the question paper.

CONTENT OF THE QUESTION PAPER

STRANDS

NATURAL SCIENCES	ENERGY AND CHANGE
	PLANET EARTH AND BEYOND
TECHNOLOGY	SYSTEMS AND CONTROL

The question paper consists of **SECTION A**, **SECTION B** and **SECTION C**

SECTION A: LOW-ORDER QUESTIONS / COGNITIVE LEVEL 1	SECTION B: MIDDLE- ORDER QUESTIONS / COGNITIVE LEVELS 2, 3 & 4	SECTION C: HIGH-ORDER QUESTIONS / COGNITIVE LEVELS 5 & 6
Q1: Electrical circuits; Electrical conductors and insulators; Systems to solve problems; Mains electricity; The solar system; Movement of the moon; Systems for looking into space	Q4: Electrical circuits; Movement of the Earth and Planets; Movement of the moon; Systems for looking into space	Q5: Systems for looking into space; Systems used to explore the Moon and Mars; Movement of the Earth and Planets; Movement of the moon
Q2: Electric circuits; The Solar System; Movement of the Earth and Planets		
Q3: Systems to solve problems; Mains electricity; Movement of the Earth and Planets and Systems for looking into space; Systems used to explore the Moon and Mars		
Total = 25	Total = 18	Total = 7

SECTION A

QUESTION 1: MULTIPLE-CHOICE-QUESTIONS

Make a **cross (X)** next to the letter of the correct answer.

1.1 A cell / battery has:

A	Three terminals	B	Two terminals
C	One terminal	D	No terminal

1.2 Coal is used in the generation of electricity. The main use of coal during the generation of electricity is to ...

A	move the turbines.	B	heat the pylons.
C	heat the water.	D	heat the magnets.

1.3 In an electrical circuit, copper wires are normally used as ...

A	converters.	B	sources of energy.
C	conductors.	D	output devices.

1.4 A motor is an example of a ...



A	polar device.	B	non-polar device.
C	nuclear energy device.	D	None of the above.

1.5 One of the following is NOT an example of fossil fuel.

A	Water	B	Coal
C	Natural gas	D	Oil

1.6 Which planet is known as 'the red planet'?

A	Mars	B	Earth
C	Jupiter	D	Saturn

1.7 The moon's period of revolution around the earth is ...

A	approximately 28 days.	B	approximately 1 day.
C	approximately 1 year.	D	approximately 28 years.

1.8 What is the largest object in our Solar System?

A	The earth	B	Jupiter
C	The asteroid belt	D	The sun

1.9 A vehicle that moves on the surface of the Moon is called a Moon ...

A	car.	B	wheel.
C	rover.	D	bike.

1.10 The instrument that allows people to look into space and gather information is called a ...

A	telescope.	B	camera.
C	lens.	D	satellite.

(10)

QUESTION 2

Match the statements in Column A with the correct word in Column B. Write the correct LETTER in Column C next to the number.

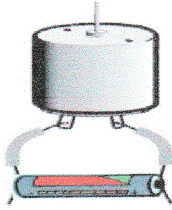

Example: 2.6 The layer of gas around a planet _____. 2.6 = H (Atmosphere)

COLUMN A	COLUMN B	COLUMN C
2.1 Component for controlling current flow in an electric circuit	A. Generator	2.1 =
2.2 Two or more parts that work together	B. Asteroids	2.2 =
2.3 A machine that makes electricity when it is turned	C. Solar system	2.3 =
2.4 Small rocky space objects that orbit the sun in a zone between Mars and Jupiter	D. Conductor	2.4 =
2.5 All of the planets, moons and other objects that move around the sun	E. Switch	2.5 =
	F. Turbine	
	G. System	

(5)

QUESTION 3

3.1 Complete the table below.

Appliance / Electrical circuit	Source of energy	Input energy	Useful output energy
	3.1.1	3.1.2	3.1.3
	3.1.4	3.1.5	3.1.6

(6)

3.2 Give the meaning of the following concepts.

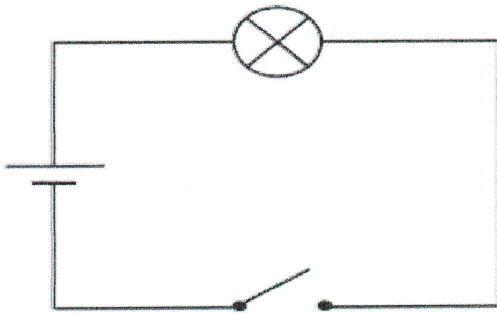
Terminology	Meaning / Explanation
3.2.1 Gravity	
3.2.2 Orbit	
3.2.3 Optical telescope	
3.2.4 Astronaut	

(4)
[25]

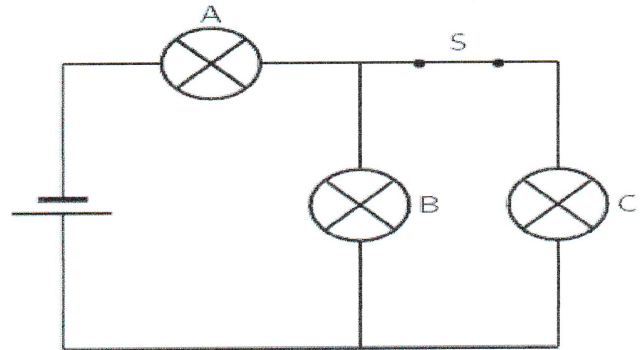
SECTION B

QUESTION 4

4.1 Compare the circuit diagrams below and answer the questions that follow.



CIRCUIT A



CIRCUIT B

QUESTIONS	CIRCUIT A	CIRCUIT B
Is the switch CLOSED or OPEN? (2)	4.1.1 _____	4.1.2 _____
Will the bulb/s LIGHT-UP in the circuit? (Yes / No) (2)	4.1.3 _____	4.1.4 _____
Is the circuit complete or incomplete? (2)	4.1.5 _____	4.1.6 _____

(6)

4.2 Compare the sources of energy.

	Source of energy
Hydro-electric power	4.2.1
Solar energy	4.2.2

(2)

4.3 Give the difference between Rotation and Revolution.

4.3.1 Rotation	
4.3.2 Revolution	

(2)

4.4 Explain what can happen if an asteroid hit / crashed into the moon.

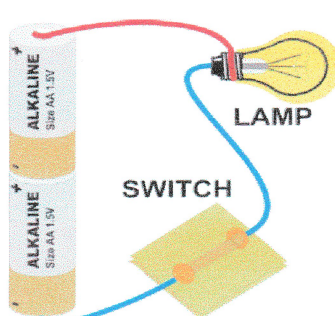
(1)

4.5 **Arrange** the manufacturing sequence when making a rover.

Steps not in the right order	Steps in the correct order (USE LETTERS ONLY)
A. Cutting and Shaping	Step 1:
B. Decorating and Reinforcement	Step 2:
C. Measuring and Marking	Step 3:
D. Joining parts together (Wheels, Axles and chassis)	Step 4:

(4)

4.6 Redraw the circuit using a circuit diagram in the table below.

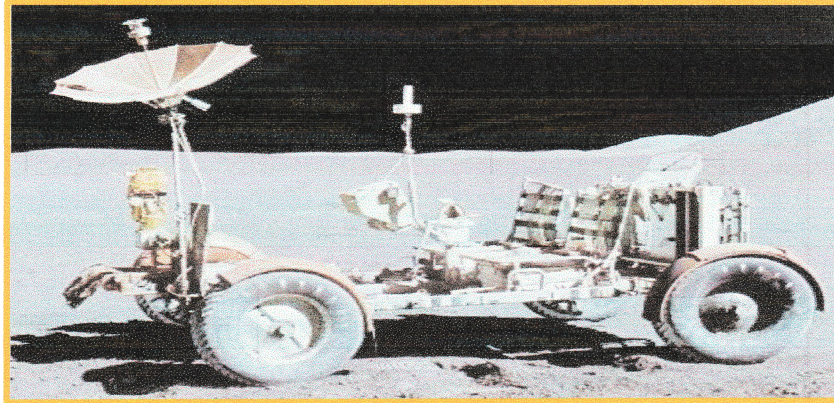
Electric circuit	Circuit diagram
	

(3)
[18]

SECTION C

QUESTION 5

5.1 Study the **Mars rover** below then answer the questions that follow.



Suggest reasons why the Mars rover has the following specifications	Purpose
5.1.1 Camera	
5.1.2 Compass	
5.1.3 Antennae	

(3)

5.2 Moons do not give out their own heat and light, but can be seen from Earth. How does this happen?

(1)

5.3 Study the table below on the rotation, revolution and temperatures of the planets in our Solar System, and answer the questions that follow.

Planet	Length of year	Length of a day	Average Temperature
Mercury	88 Earth days	58 Earth days	-180 °C to +430 °C
Venus	225 Earth days	243 Earth days	453 °C
Earth	365.242 Earth days	24 hours	-13 °C to 37 °C
Mars	687 Earth days	25 hours	-123 °C to 7 °C
Jupiter	12 Earth days	10 hours	-153 °C
Saturn	29 Earth days	10 hours	-185 °C
Uranus	84 Earth days	18 hours	-214 °C
Neptune	164 Earth days	19 hours	-225 °C

5.3.1 How long will a day or night be on Mars? _____ (1)

5.3.2 Which planet is the coldest? What is its temperature?

_____ (1)

5.3.3 Give reasons for your answer to Question 5.3.2.

_____ (1)

[7]

TOTAL: 50

END