SECTION A

QUESTION 1

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QUESTION 1

Various possibilities are suggested as answers to the following questions. Choose the correct answer and write ONLY the letter (A to D) representing your chosen answer next to the question number (1.1 to 1.5) on your ANSWER BOOK for e.g. 1.6 E.

1.1 The electrical energy movement pathway is known as …

A appliance.
B electric current.
C electric circuit.
D component.

1.2 The reason why copper wire is commonly used as an electric wire is because …

A copper is an insulator.
B copper shines.
C copper conducts electricity easily.
D copper is not magnetic.

1.3 ONE of the following devices is used to produce sound energy to help us to protect our homes from burglary:

A Electric gates
B Alarms
C Traffic lights
D Street lights

1.4 Small, rocky space objects that orbit the sun in a zone between Mars and Jupiter are called …

A planets.
B meteorites.
C asteroids.
D the moons.

1.5 Planet Earth revolves around the sun in an orbit. One complete revolution takes …

A 364¼ days.
B 365½ days.
C 365¼ days.
D 365 days.

(5 x 1) **[5]**

LIVEWORKSHEETS

QUESTION 2

	COLUMN A		COLUMN B
2.1	Come from living things that died millions of years ago	A	Astronaut
2.2	Can be seen from the earth because the light from the sun shines on to its surface	B	Fossil fuel
2.3	Is used to look into space and gather information	C	Revolution
2.4	Two or more cells connected together	D	Space Rover
2.5	Is used to collect rock and soil samples and take photographs of the surfaces of the moon and Mars	E	Moon
		F	Telescope
		G	Battery

(5 x 1) **[5]**

QUESTION 3

Use the word list to correctly complete sentences below.

Generator	Electrical insulators		Symbols	Components
Turbine		Mercury		Earth

3.1 ... are connected together to complete an electric circuit. (1)

3.2 ... are used when drawing circuit diagrams. (1)

In power stations, coal is used to boil water.
The steam turns a (**3.3** ...) in a (**3.4** ...) which produces electricity. (1 + 1) (2)

3.5 The closest planet to the Earth is ... (1)
[5]

TOTAL SECTION A: 15

3.1

3.2

3.3

3.4

3.5

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SECTION B

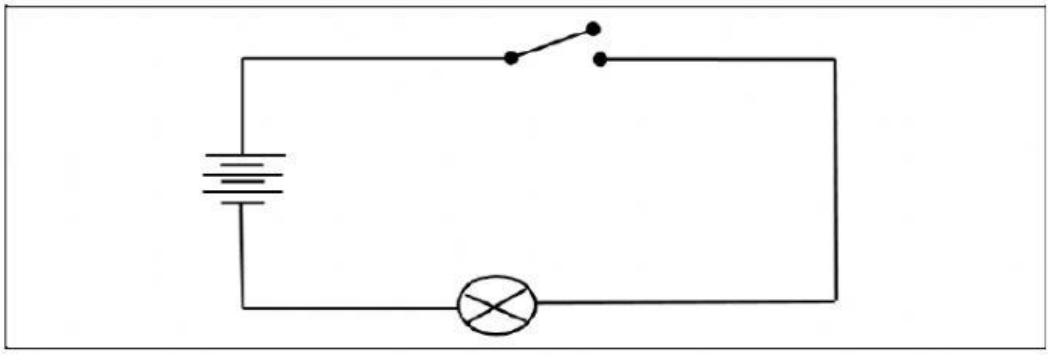
QUESTION 4

Write down the scientific word/s for each of the following statements:

4.1	A component that controls the flow of electricity	(1)
4.2	The material through which an electric current can pass	(1)
4.3	Use of running water to generate electricity	(1)
4.4	Large steel tower-like structure supporting electrical cables	(1)
4.5	The spinning of the earth on its own axis	(1)
		[5]

QUESTION 5

Look at circuit diagram below and answer the question that follows.



5.1	How many cells are there in the circuit?		(1)
5.2	What is function of the battery in the circuit?		(1)
5.3	Why do we need a control device in a circuit?		(1)
5.4	Which device produces the output energy?		(1)
5.5	Will the current flow in the circuit? Explain your answer.	(1) (2)	(3)
5.6	Suggest a reason why an electrician uses circuit diagrams when dealing with electricity.		(2)
			[9]

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QUESTION 6

Look at the pictures below and answer that follows.

glass	cooldrink can	coins
knife	pen	pencil eraser

6.1 Mention TWO objects above that can act as *conductors* and TWO that can act as *insulators*. (2 x 2) (4)

6.2 State ONE reason why you classified it as conductors and ONE reason why you classified it as insulators. (1 + 1) (2)

6.3 Which material is an insulator in a light bulb? (1)
[7]

QUESTION 7

A television is an example of an electric system.

7.1 Identify the **input**, **process** and **output** of a TV-set. (3)

7.2 Name ONE example of an object that has an electric circuit that produces a movement. (1)

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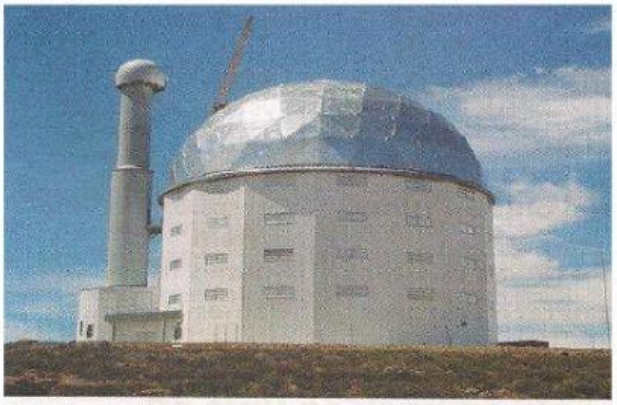
Question 8

Read the whole case study carefully and answer the questions that follow.

South Africa's largest telescopes

The **Southern African Large Telescope** (SALT) is a state-of-the-art scientific instrument. SALT is situated near Sutherland in the Northern Cape. This site was chosen for its dark and clear skies and good weather conditions. SALT is amongst the largest optical telescopes in the world. SALT can detect light that is as faint as a candle flame on the moon would appear to us. This is why it is important to have dark skies with no city lights nearby.



The Southern African Large Telescope (SALT) in Sutherland

Square Kilometer Array Radio Telescope (or SKA)

It will consist of thousands of radio receiver dishes mostly in South Africa, but also in other parts of the world, in fact four different continents. The dishes will be linked together into one huge radio telescope system. They will be linked with high-speed data cables and the data will be processed by some of the fastest computers available. The dishes together will add up to one square kilometer of surface area. This huge size and spread across continents will make the SKA at least 50 times more powerful, and 10 thousand times faster than any other radio telescope.

KAT-7 (**Karoo Array Telescope**) is part of the SKA and is already operating. It has 7 receiver dishes. MeerKat, also in the Karoo, will have 64 receiver dishes and will be completed in 2016.

Radio receiver dish of KAT-7

What do the following abbreviations stand for? SKA, KAT and SALT. (3 x 1) (3)

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Explain why SALT was built near Sutherland. (1 x 1) (1)
[4]

Question 9

If you are appointed as a designer of a Robot Vehicle to be sent to Mars, mention TWO key features that you would include in such a vehicle. (2)

Compare the moon rovers and Mars rovers by completing the following:

Moon rovers and Mars rovers are similar because … (2 x 1) (2)

Moon rovers and Mars rovers are different because … (1 x 1) (1)
[5]

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