

**TERM 3**  
**NATURAL SCIENCES + TECHNOLOGY**  
**TEST**  
**GRADE 6**

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**MARKS** : 50  
**DURATION** : 1 HOUR  
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**Instructions:**

1. Read and follow all the instructions as indicated on the exam paper.
2. Fill in your name in the place provided.
3. Answer all questions on the question paper.

**School:** \_\_\_\_\_

**Name and Surname:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**/50**

**QUESTION 1**

- a. List 4 components of an electric circuit. (4)
- b. Draw a circuit diagram in the space provided using the following components:  
2 cells connected in series, 2 bulbs and an open switch [5]



- c. Fill in the missing words. Use the word in the text box below. [5]

|                  |                 |            |
|------------------|-----------------|------------|
| Non-renewable    | electric charge | insulators |
| Electric current | renewable       | conductors |

- i. \_\_\_\_\_ are materials that conducts electrical energy well.
- ii. \_\_\_\_\_ are materials that do not conduct electricity
- iii. Coal is an example of \_\_\_\_\_ energy.
- iv. The wind is a source of \_\_\_\_\_ energy.

v. The movement of electrical charge is known as an \_\_\_\_\_

d. Explain why the electric current won't reach a light bulb if there is an open switch (2)

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e. Why are electrical wires in electrical circuits covered with plastic? [2]

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f. Give examples of 2 materials that can conduct electricity and 2 materials that don't conduct electricity. [4]

| Conductors | Insulators |
|------------|------------|
|            |            |
|            |            |

Question 2

a. Look at the systems below and complete the questions

[6]

| Object                                                                             | Input: energy from..... | Output: Energy changed to..... |
|------------------------------------------------------------------------------------|-------------------------|--------------------------------|
|   |                         |                                |
|   |                         |                                |
|  |                         |                                |

b. The table below shows the electricity usage of appliances at home:

[4]

| Type of appliance    | Wattage rating |
|----------------------|----------------|
| Drill                | 380w           |
| TV                   | 85w            |
| Kettle               | 2000w          |
| Energy-saver bulb380 | 11w            |

i. Which appliance will use more electricity [1]  
\_\_\_\_\_

ii. Explain why it is better to use energy-saving bulbs? [1]

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iii. Write down 2 energy saving ideas that you can use at home. [2]

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Question 3

a. Give a definition of a fossil fuel [2]

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- b. Write a paragraph to explain how coal forms. Use the following words in your paragraph.
- [6]

Heat   plants   energy   rotting   pressure   layers

[illegible]

### QUESTION 4

(8)

- a. Illegal connections are very dangerous. Read the article below and answer the questions:

Snake Park, Soweto - Mrs Xauaka Kokoropo said she was saving money to buy a cable to connect illegally to her neighbor's electrical box. "We know it is illegal," she said, but I have many appliances and need electricity! "She said illegal connections would not stop

until the authorities help the residents. Her neighbor said that many people have died in shack fires because they used open fires in tin containers to warm up their shacks, but forgot to put them out once they were warm, and the shacks caught fire. If they had electricity the tragic deaths could have been avoided she added. However, a resident who did not give his name said that illegal connections annoyed residents who pay because they cause power failures and also hurt or kill children.

- i. What evidence can you find in the article that the Snake Park community is stealing electricity? (1)

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- ii. What are the dangers of illegal connections? (Give only 2) (2)

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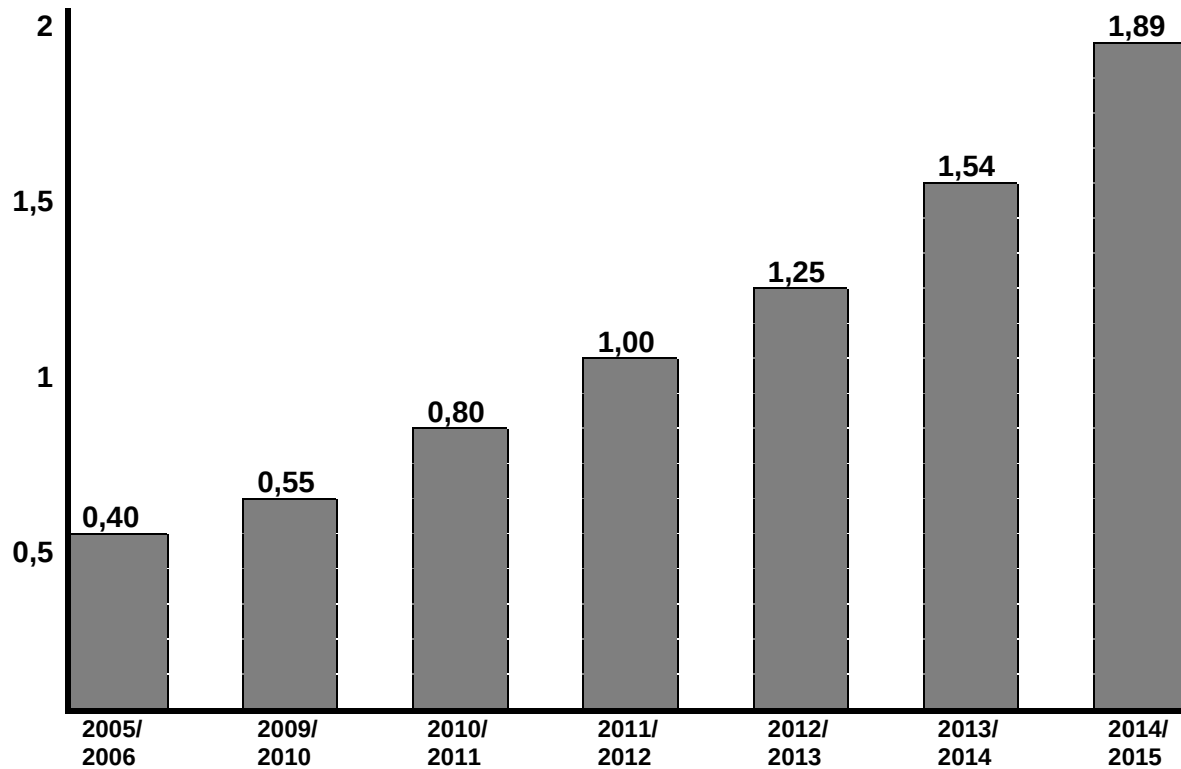
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- b. Eskom has implemented a dramatic price increase in the past and could ask for a price increase in the future. The demand in the country exceeds the supply.

The graph below shows the price change over seven years period.



Actual and projected cost of electricity between 2008-2015

i. Why is electricity so expensive? (2)

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Look what it would have caused you if you boiled a kettle of water using 2kw in 2008 in the table below.

$2\text{kw} \times 0.40\text{c}$   
 $= 0.80\text{c}$   
 $= 80 \text{ cents each time you boil the kettle}$



- ii. What would have cost you to boil the same amount of water in a kettle in 2015? (3)

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**Total for Question 4: [8]**

@@@@@@@@@@@@Good Luck!@@@@@@@@@@@@