



GAUTENG PROVINCE

Department: Education

REPUBLIC OF SOUTH AFRICA

EKURHULENI NORTH DISTRICT

Natural Sciences
Grade 7
Common Examination

Specific Aims: 1, 2 and 3

Strands: Energy and Change, Earth and Beyond

Name: _____

Class: _____

Date: November 2015

Time: 1 hour

Marks: 60

INSTRUCTIONS AND INFORMATION

1. Write your school, surname, name and your class on the cover sheet.
2. Carefully read and answer all the questions.
3. Do all the drawings neatly with a pencil.
4. Write neatly and legibly.
5. The use of calculators is not allowed.
6. This paper consists of SECTION A AND B with 8 pages including the cover page.

SECTION A

Question 1

Multiple Choice

Read each statement or question carefully and choose the correct answer from the options provided and then **circle the corresponding letter**.

1.1 Which of the following is an example of a renewable source of energy?

- A. Uranium
- B. Hydropower
- C. Coal
- D. Petrol

1.2 The energy possessed by turbines of a power plant while moving is ...

- A. mechanical energy
- B. potential energy
- C. chemical energy
- D. heat energy

1.3 The law of conservation of energy states that...

- A. energy can either be created or destroyed.
- B. energy is always wasted in a process.
- C. energy is stored in a system as chemical energy.
- D. energy can neither be created nor destroyed.

Natural Sciences Grade 7 November 2015 District Common Examination

1.4 The tendency of objects to attract each other is called...

- A. its rotation
- B. its mass
- C. an attractive source
- D. gravity

1.5 Which of the following was developed for observing the pattern of celestial bodies?

- A. Telescope
- B. Calendar
- C. Gravity
- D. phases of moon

[1x5= 5]

Question 2

Say whether each of the following is **TRUE** or **FALSE**:

- 2.1 Energy is measured in a unit called the joule (J). _____
- 2.2. You can prevent heat energy from being lost from the surface of a geyser by covering it by an insulator such as a geyser blanket. _____
- 2.3 Days are always longer than nights at the equator. _____
- 2.4 Nicolaus Copernicus suggested that the Sun is the centre of the Solar System. _____
- 2.5 The Sun revolves around the Earth once in 24 hours. _____

[1x5= 5]

Natural Sciences Grade 7 November 2015 District Common Examination

Question 3

Match the terms in Column A with the correct descriptions in Column B and write down only the correct letter in Column C.

COLUMN A	COLUMN B	COLUMN C
3.1 Oil	A. A source of energy that can be replaced.	3.1
3.2 Circle of illumination	B. The energy an object has due to movement.	3.2
3.3 Radiation	C. The line dividing the lit half of Earth from the dark half.	3.3
3.4 Ecliptic	D. The way that heat energy flows through liquids and gases	3.4
3.5 Kinetic energy	E. The path that the Sun appears to travel across the sky over the course of a year.	3.5
	F. The transfer of heat energy by electromagnetic waves.	
	G. The non-renewable energy source used to make paraffin, diesel and petrol.	

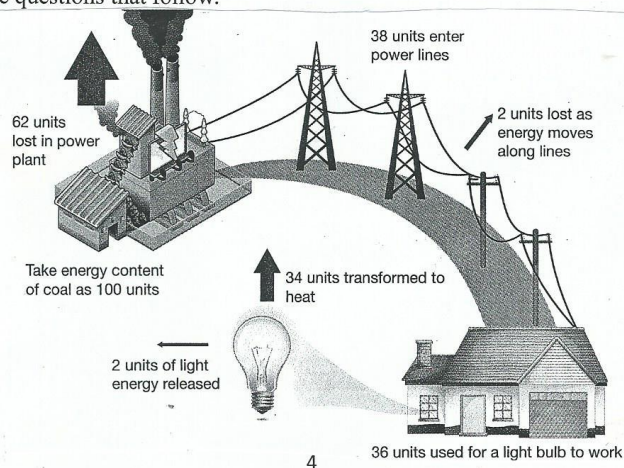
[1x5= 5]

SECTION A TOTAL: 15

SECTION B

Question 1

Study the following diagram about the **energy transfer from a power plant to a light bulb** and answer the questions that follow.



Natural Sciences Grade 7 November 2015 District Common Examination

1.1 What is the percentage of the energy 'wasted' during production? _____ (2)

1.2 What percentage of the energy enters the power lines? _____ (1)

1.3 Calculate the percentage of the energy that enters the power lines that is lost in the movement along the lines?

_____ (2)

1.4 How many units are needed for the bulb to work? _____ (1)

1.5 How can people living in the above house reduce the amount of electricity they use?

_____ (2)

1.6 If the above house is built in a hot environment, what colour would you paint the roof with? _____ (2)

1.6.1 Give reasons for your choice of colour in 1.6 above _____ (2)

1.7 Define the term energy. _____ (1)

[13]

Question 2

Judy investigated heat conduction in copper and plastic to find out which is the better insulator. She used Vaseline to stick a drawing pin to the end of a bar made of copper and a bar of plastic. Each bar is 10cm long and has a diameter of 1cm. Judy held the ends without the drawing pin over a Bunsen burner flame with a pair of tongs. She recorded how long it took for each drawing pin to drop.

2.1 Name two variables Judy should have controlled to ensure that his test was fair.

_____ (2)

2.2 Which variable was measured?

_____ (1)

2.3 Which instrument is suitable for measuring the variable in question 2.2?

_____ (1)

2.4 Which variable was changed?

_____ (1)

Natural Sciences Grade 7 November 2015 District Common Examination

2.5 Discuss how Judy could tell from her results which substance is the best insulator.

_____. (3)

2.6 Explain two ways in which the findings from this investigation would be useful.

_____. (2)

[10]

Question 3

3.1 Draw a diagram to show the alignment of the Moon, Earth and Sun at Full moon. Label each object clearly. (3)

3.2 Shade the unlit part of Earth and the Moon in your diagram. (2)

3.3 Draw in the water of Earth to show where the tide is high and where it is low, and label these tides.

3.4 What name do we give to the tides at this phase of the Moon?
_____ (1)

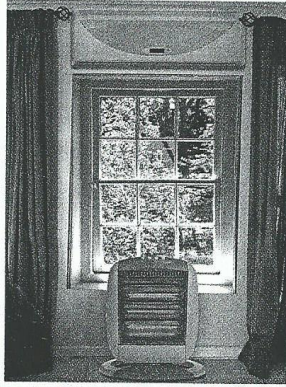
3.5 What is the phase of the Moon when it is between the Earth and the Sun?
_____ (1)

[11]

Natural Sciences Grade 7 November 2015 District Common Examination

Question 4

4. Study the position of the air conditioner and the heater in the photograph of a room below and answer the questions that follow.



4.1 What is convection?

_____ (1)

4.2 Explain how the room is warmed up by the heater in winter.

_____ (2)

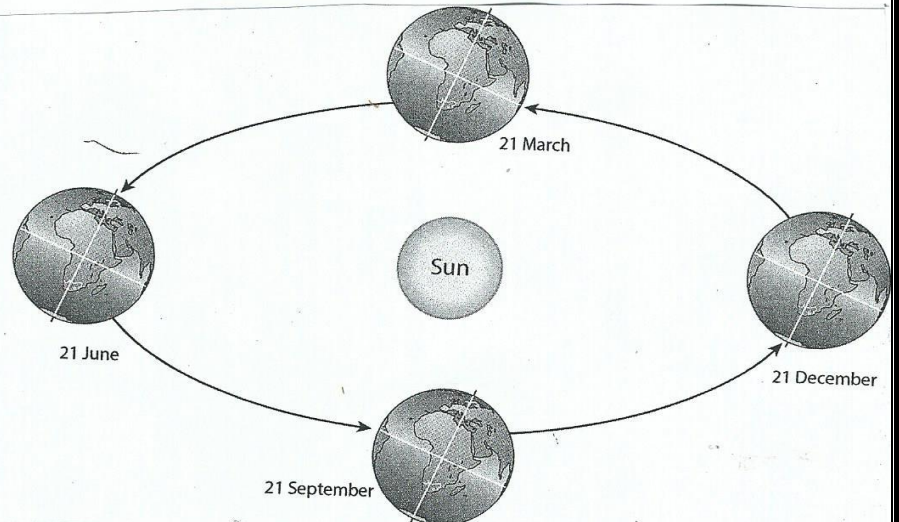
4.3 Explain how the room is cooled down by the air conditioner in summer.

_____ (2)
_____ [5]

Natural Sciences Grade 7 November 2015 District Common Examination

Question 5

5. Study carefully the diagram below and answer the questions that follow.



5.1 In which month is the southern hemisphere tilted toward the Sun?

(1)

5.2 Explain why the Sun's rays strike different places on Earth at different angles.

(2)

5.3 Write a paragraph explaining how the Sun's energy supports life on Earth.

(3)

[6]

SECTION B TOTAL: 45

TOTAL MARKS: 60