TOM NEWBY SCHOOL EXAMINATION

Subject	**Natural Sciences**	**Examiner**	**Mrs Fourie, Mr Hudson**
Date	**14 November 2017**	**Total marks**	**100**
Session	**1**	**Duration**	**1½ Hours**
Grade	**7**	**Moderator**	**Mrs Fourie**
Special instructions/ Equipment	**Use grey pencil for drawings.** **1. Answer all questions on the question paper.** **2. Write neatly and legibly.** **3. Take note of mark allocation.** **4. Think before you INK!** **5. Check your answers when you are done.**		
This assessment has been compiled using notes and information contained in the Tom Newby School resource material. The marking memorandum has been compiled accordingly. While alternative responses will be given due acknowledgement, the official memorandum will be considered a priority document to ensure uniformity of marking.			

Name:	Surname:	Class:

MEMORANDUM

QUESTION 1 – CHOOOSE THE CORRECT ANSWER **(10)**

Choose the correct answer from the word/s in brackets. Write down the chosen word/s next to the given number.

1. A burning fire radiates heat and light energy/heat and flame energy.
   Heat and light √
2. Earth remains tilted on its axis as it revolves in its revolution/orbit.
   Orbit √
3. Oil forms from the remains of dead plants/sea animals.
   Sea animals √
4. Day is always/never longer than night at the equator.
   Always √
5. In the water cycle, the sun's energy is used for condensation/evaporation.
   Evaporation √
6. A microwave warms food by warmth and light/by radiation.
   Radiation √
7. A bent ruler has elastic potential energy/elastic kinetic energy.
   Elastic potential energy √
8. A torch battery, inserted into a torch, creates a biological/chemical reaction, which releases electrons that flow through the circuit.

Chemical √

9. There is high tide at the same place, at the coast, every twelve/six hours.

   Six √

10. The Moon's mass is much less/much more than Earth's mass.

    Much less √

QUESTION 2 – MATCH THE COLUMNS **(10)**

Match the definition given in Column A, with the correct word/words in Column B. Write only the letter next to the number.

Column A	Column B
1. Non-renewable source of energy 2. Renewable source of energy. 3. Type of energy found in gas. 4. Energy produced when turbine turns. 5. Large, metal towers that carry electricity to our homes. 6. White mussels live in the wet sand and they put up two little tubes called _____ for breathing 7. Temporary phenomena on the surface of the sun. 8. Predictable, repeated rise and fall of sea and ocean levels. 9. Large kind of seaweed that grows mostly in cold sea water. 10. A circle of twelve constellations seen at certain times of the year.	A. Wind B. Potential energy C. Pylons D. Coal E. Mechanical energy F. Thermal energy G. Tides H. Zodiac I. Ecliptic J. Kelp K. Sunspots L. Sunstripes M. Ocean rises N. Steel frames

√ √ √ √ √ √ √ √ √ √

1	D	2	A	3	B	4	E	5	C	6	J	7	K	8	G	9	I	10	H

QUESTION 3 – CLASSIFY ENERGY SOURCES **(10)**

Classify each of the following energy sources as either renewable or non-renewable and list what the image is or what type of energy is being shown in the images.

A. 

Is it renewable/non-renewable?

Non-renewable √

What is it/where is energy used?

Petrol/diesel tanker √

B. 

Is it renewable/non-renewable?

Renewable √

What is it/Where is energy used?

Solar panels on a roof √

C. 

Renewable/non-renewable?

Renewable √

What is it/Where is energy used?

Wind turbines on a wind farm√

D. 

Renewable/non-renewable

Renewable √

What is it/Where is energy used?

Hydro-electricity – a dam√

E. 

Renewable/non-renewable?

Non renewable √

What is it?/Where is energy used?

Nuclear power station √

QUESTION 4 – TRUE OR FALSE **(10)**

Say whether the following statements are TRUE or FALSE. If FALSE, correct it, to make it TRUE.

1. One would be able to jump and throw balls higher and further on the Moon, that on the Earth.

   True √

2. The energy of the Sun is transferred to Earth by absorption.

   False. By radiation √√

3. Efficiency, means being able to do "less with more".

   False. To do "more with less" √√

4. When fluid (liquid) is warmed up, the particles move around more quickly.

   True √

5. If you put a frying pan on a stove, the pan will be hot in about a half an hour.

   False. Within a few minutes. √√

6. Some substances, like plastic and wood, are poor conductors of heat.

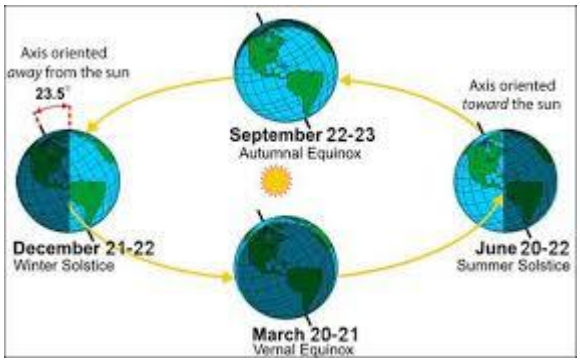
   True √

7. It takes the Moon, almost a month, 29,5 days, to orbit earth once.

True √

QUESTION 5 – DIAGRAMS (10)

1. Study the diagrams below carefully and answer the questions that follow:



a) In which month is the Southern Hemisphere tilted towards the sun? (1)

In December/21 December √

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

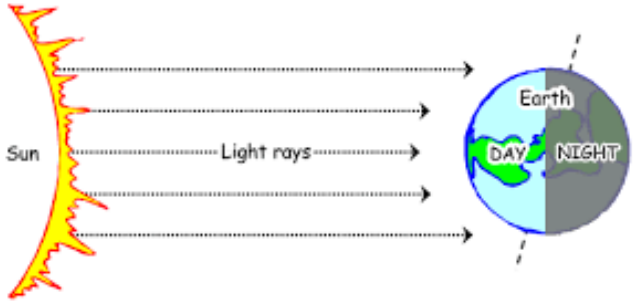
(2)

As Earth revolves around the Sun, different parts of Earth are tilted towards the Sun, or away from it, at different times. The Southern/Northern hemisphere is sometimes tilted away from the Sun. √√

c) How does the Sun's energy Support life on Earth? (3)

The Sun is a large ball of gas that gives off heat and light energy. √ This energy reaches Earth and supports life in many ways, e.g. day night happens, plants and humans grow and live. The Sun warms the Earth by radiation and gives light and heat. √

2. Study the diagram to answer the questions. (4)



a) Which ... (1)

The Equator √

b) Is the Earth receiving oblique or direct sunrays? (1)

Direct sunrays √

c) What is the size of the angle of the line seen from the North to the South Pole. (1)

23,5° √

d) Where is the Arctic circle situated? (1)

At the North Pole √

QUESTION 6 – DEFINITIONS **(10)**

Define each of the following terms:

1. Global warming (2)

   Gradual, increase in Earth's average temperature, because gases, such as carbon dioxide, released when fossil fuels are burnt, trap radiation within the atmosphere.

2. Biofuel (2)

   Energy from the Sun is stored, in all plant matter, but mainly in wood and also in animal dung.

3. Mass (2)

   Mass is the amount of matter in an object. We measure mass in grams and kilograms.

4. Sandy shore ecosystems (2)

   The upper beach area that is dryer and usually has mostly land-living animals, for example ghost crabs and sand fleas.

5. Solar Energy (2)

   The Sun is our most important source of energy. So the main use of solar energy in South Africa is for heating water through solar panels or solar water heating systems, mainly installed on low-cost houses.

QUESTION 7 – FACTS AND SHORT PARAGRAPHS

Answer the short questions and paragraphs.

1. Explain what makes it possible for the fire to keep the room in the house warm?

   (2)

   The room is insulated with flooring and carpets. The fireplace is burning, releasing heat and warmth.

2. What is radiation? (2)

   The transfer of energy by electro-magnetic waves. Radiation can transfer heat energy.

3. Give one other example of how and where radiation can occur, and explain. (2)

   e.g. meat on a braai/gas braai. Meat gets toasted or cooked through the transfer of heat from the red hot coals of the gas burners.

   e.g. Through a microwave – Heat up food/solids or liquids in a microwave. Press the button to set the time and heat comes through radiation.

4. Why is a fireplace, placed at the bottom of a room and not near the ceiling? (2)

The heat from the fireplace moves across the room and heat rises and cold air sinks

5. Explain the general function of insulating materials in and around the house. (2)

   Insulation materials keep hot items hot, cold items cold, like in an ice-cooler box. We can insulate roofs, ceilings and put carpets in etc, to insulate a house.

6. Explain the Law of Conservation briefly. (3)

   Energy cannot be created.

   Energy cannot be destroyed.

   Energy can be transferred from one system to another/converted from one form to another.

7. Give any 3 (three) facts of oil or what you know about oil. (3)

   Oil can be used to make many other substances, such as paraffin, diesel and petrol. One of the most important sources of energy for trains, cars, and aeroplanes. South Africa has to buy oil from other countries, as we don't have enough.

8. Draw/explain the Input, the Process and the Output, and mention the wasted energy in the image below. (4)

INPUT	PROCESS	OUTPUT

WASTED ENERGY

QU GS AND EXPLANATIONS **(10)**

m to who the alignment of the Moon, Earth and Sun at Full Moon. Label each object clearly. (3)

1. What are moons? (1)

   Moons are small bodies that travel around a planet.

2. The moon has an effect on the tides. (1)

8.2 Look at the image and answer the questions.

1. What is meant by the word solstice? (1)

   Solstice means that the Earth experiences the longest day or shortest day, according to the seasons

   and hemispheres.

2. What is a tidal bulge? (2)

   It is the moon's gravitational pull due to gravity, when two tidal bulges are created on opposite sides of the Earth.

3. What does the word equinox mean (1)

   That the Earth has equal length of days and nights.

4. Explain the summer solstice. (1)

   Summer solstice is the longest day in the hemisphere. It happens on 21/22 December normally.

   The Sun will reach its highest position in the sky as seen from the North or South Pole. The tilt of the axil of the Earth is at 23,5°

TOTAL : 100