TOM NEWBY SCHOOL

TERM 4 FORMAL ASSESSMENT

Subject	**Natural Sciences**	**Examiner**	**Miss Coppenhagen**
Date	**November 2022**	**Total marks**	**80**
Grade	**7**	**Duration**	**90 min**
		Moderator	**Mrs Fourie**
Special instructions/ Equipment	**1. Answer all the questions on the answer sheet provided.** **2. Read and answer ALL questions thoroughly.** **3. Write neatly and legibly in blue pen.** **4. Use a pencil for any drawings.** **5. Good luck! Think before you INK!**		
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:

SECTION A: SHORT QUESTIONS [15]

QUESTION 1 [8]

Fill in the missing words in the paragraph using the words in the table provided below.

Write the words you have selected in the spaces provided below the paragraph.

~~**Energy**~~			
coal	**non-renewable**	**renewable**	**expensive**
used up	**environmental**	**water**	**wind**

There are two types of energy: 1.1_____and 1.2_____. Energy sources like 1.3_____,gas and oil are called non-renewable energy sources because they will eventually all be 1.4_____.These energy sources can create 1.5_____problems. Energy is also 1.6_____,so we need to use it wisely. Renewable energy sources like 1.7_____energy and energy from falling 1.8_____will not be used up.

1.1 _____

1.2 _____

1.3 _____

1.4 _____

1.5 _____

1.6 _____

1.7 _____

1.8 _____

QUESTION 2 **[7]**

Match the words in Column A with their meaning in Column B. Write only the letter representing the correct answer in the answer grid.

	COLUMN A		COLUMN B
2.1	Joules	A	The outcome of the interaction in the system.
2.2	Input	B	Pair of scissors cutting a piece of paper.
2.3	Output	C	The energy before any interactions occurs.
2.4	Energy system	D	How the energy is changed.
2.5	Process	E	The measurement of energy.
2.6	Biological system	F	Different parts that work together for a specific task.
2.7	Mechanical system	G	A cat drinking milk.

2.1	2.2	2.3	2.4	2.5	2.6	2.7

SECTION B: SOURCES OF ENERGY [45]

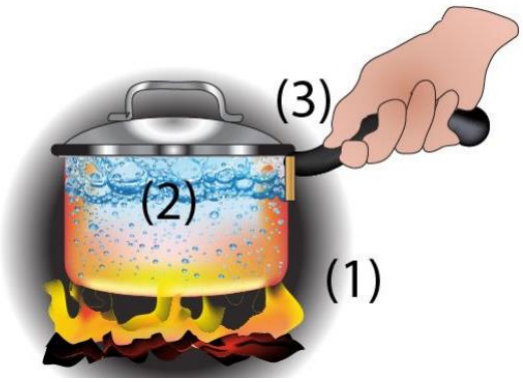
QUESTION 3 **[17]**

The image shows a pot of water that is heated over a fire. Three examples of heat transfer are shown. Label each heat transfer correctly.

3.1_____ (1)

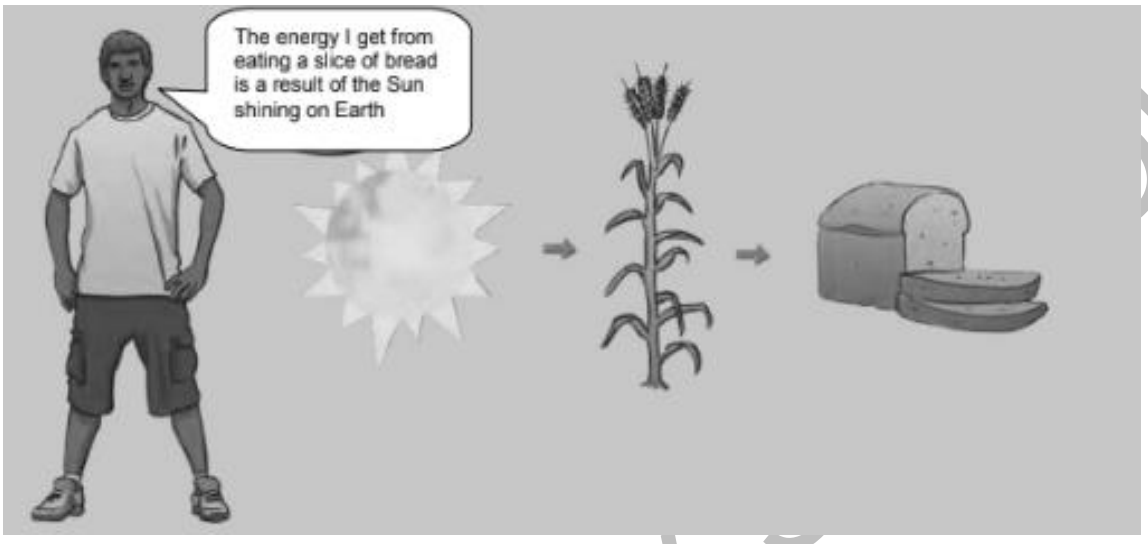
3.2_____ (1)

3.3_____ (1)



Use the flow diagram provided. Write a paragraph of 5 – 6 sentences to explain why you agree or disagree with the statement. Use the words in the text box in your explanation.

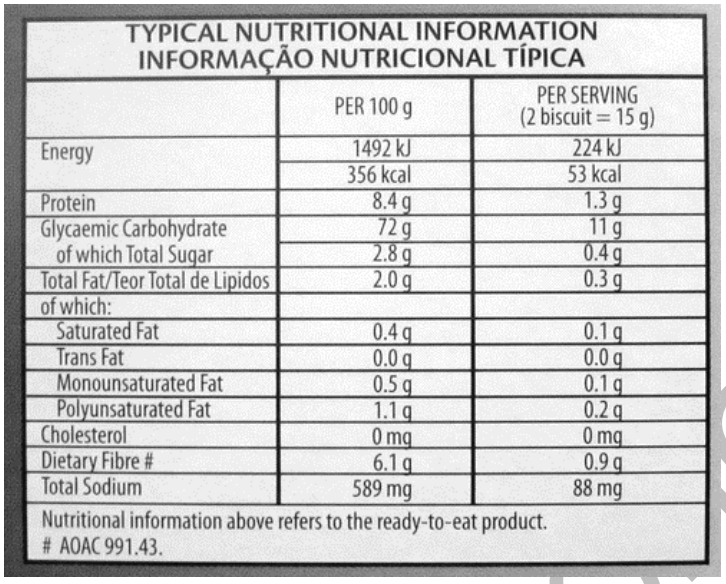
A boy says: 'The energy I get from eating a slice of bread is a result of the Sun shining on Earth.' Do you agree with this statement?



Capture	**release**	**store energy**	
photosynthesis	**Sun**	**wheat**	**bread**

(6)

3.5 The following image shows the nutritional information on a box of cracker biscuits. Study it and then answer the questions that follow.



TYPICAL NUTRITIONAL INFORMATION INFORMAÇÃO NUTRICIONAL TÍPICA		
	PER 100 g	PER SERVING (2 biscuit = 15 g)
Energy	1492 kJ 356 kcal	224 kJ 53 kcal
Protein	8.4 g	1.3 g
Glycaemic Carbohydrate of which Total Sugar	72 g 2.8 g	11 g 0.4 g
Total Fat/Teor Total de Lipidos	2.0 g	0.3 g
of which:		
Saturated Fat	0.4 g	0.1 g
Trans Fat	0.0 g	0.0 g
Monounsaturated Fat	0.5 g	0.1 g
Polyunsaturated Fat	1.1 g	0.2 g
Cholesterol	0 mg	0 mg
Dietary Fibre #	6.1 g	0.9 g
Total Sodium	589 mg	88 mg
Nutritional information above refers to the ready-to-eat product. # AOAC 991.43.		

3.5.1 What is the energy content per 100g in **joules**? (2)

_____

_____

3.5.2 What is the mass of **three** biscuits? (2)

_____

3.5.3 The nutritional information gives the energy content if the serving size is two biscuits, but you want to know what the energy content will be if you eat three biscuits. Calculate the answer. (2)

_____

3.5.4 You then decide that you want to eat six biscuits. What is the energy content for a serving of six biscuits? (2)

_____

QUESTION 4 **[13]**

CASE STUDY: SOLAR ENERGY

Read the case study and answer the questions that follow.

South Africa is a sunny country. However, because the Sun does not shine at night, scientists have had to find ways to store the Sun's energy so that it can be used at times when the Sun is not shining.

In a concentrated solar power plant like the one shown in the picture below, thousands of mirrors focus the Sun's rays on the power tower in the centre. Here the Sun's energy heats a type of salt to about 565ºC. This molten salt is used to heat water, which produces steam to generate electricity – as in a normal power station. Some of the hot, molten salt is stored in a storage tank underground. At night, and in cloudy weather, the stored molten salt is used to keep the power station going.

4.1 Briefly explain the Law of Conservation of energy. (3)

4.2 Name four types of renewable energy sources and provide an explanation for each source. (8)

4.3 Explain why the energy mentioned in question 4.2 is regarded as renewable energy. (2)

QUESTION 5 **[10]**

5.1 Draw an energy flow diagram in the block provided below and explain the Input, Process and Output stage of the image below. (3)

Torch light

5.2 Explain briefly how heat is transferred by:

a. Conduction_____
_____(2)

b. Convection_____
_____(2)

c. Radiation_____
_____(2)

5.3 Why can convection not occur in solids? (1)

_____
_____
_____

QUESTION 6 **[5]**

Complete the following table of energy systems. Write your answers in the spaces provided below the table. (5)

Energy System	Example of this energy system	Type of energy that is used in this energy system
6.1	Riding a bicycle	Kinetic energy
6.2	Radio	Sound energy
Biological	Eating a sandwich	6.3
6.4	Hot bath	6.5

6.1 _____

6.2 _____

6.3 _____

6.4 _____

6.5 _____

SECTION C: PLANET EARTH AND BEYOND [20]

QUESTION 7 **[6]**

Choose the correct option from the underlined words in each statement. Write your answers in the spaces provided below the table.

7.1 Objects of larger mass exert more/less gravitational pull on each other than objects of small mass. (1)

7.2 The closer together/further apart two objects are, the greater the gravitational pull that they exert on each other will be. (1)

7.3 Earth's gravitational pull/rotation keeps the Moon revolving around Earth. (1)

7.4 Spring tides are experienced when the Sun, Earth and Moon are aligned with/at right angles to each other. (1)

7.5 There is a high tide at the same place about every twelve/six hours. (1)

7.6 On a beach, animals between the high and low water levels must cope with dry conditions all the time/wet conditions all the time/periods of dry and wet conditions. (1)

7.7 The tilt of Earth's axis means that we have seasons/day and night. (1)

7.1 _____

7.2 _____

7.3 _____

7.4 _____

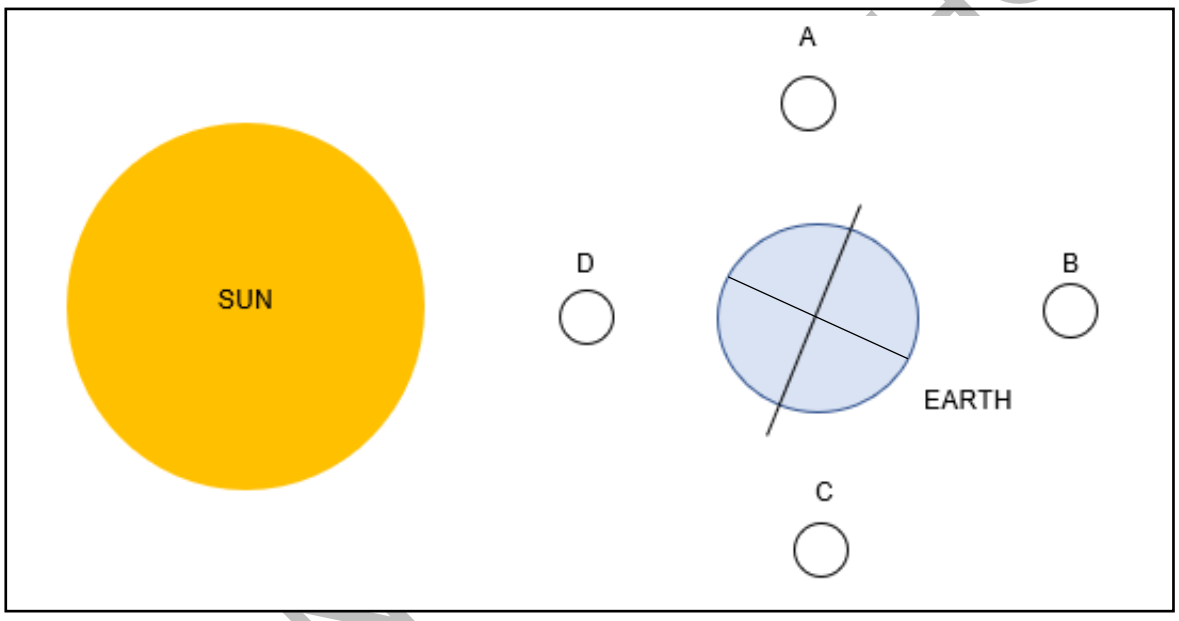
7.5 _____

7.6 _____

7.7 _____

QUESTION 8 **[13]**

Use the following diagram to answer the questions.



8.1 Name each phase of the Moon labelled A-D in the diagram above. (4)

A)_____

B)_____

C)_____

D)_____

8.2 Explain why we cannot see the moon shining in the sky when it is at point D in the image: (2)

_____

_____

8.3 Explain why the solar energy will be more intense on the Equator and less intense at the Poles: (2)

_____

_____

8.4 Name the season when:

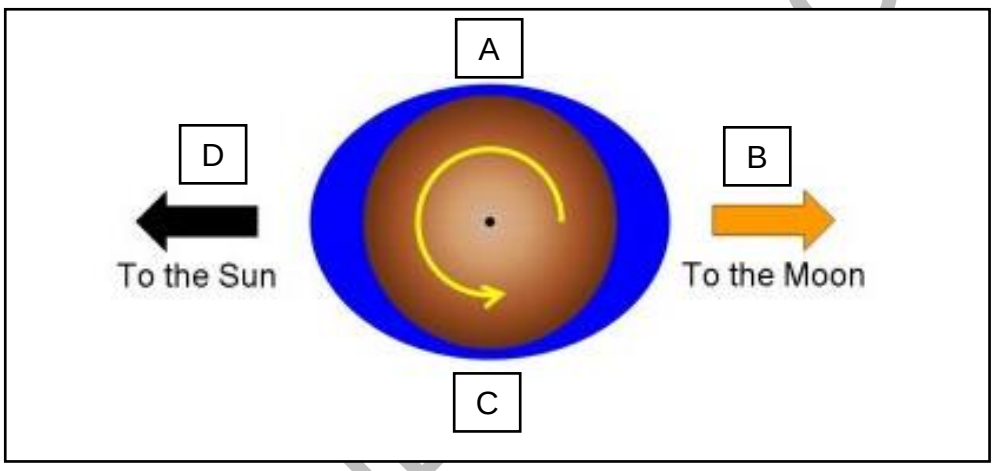
a) the Northern hemisphere is tilted away from the Sun.

_____ (1)

b) the Southern hemisphere is tilted towards the Sun.

_____ (1)

8.5 Use the diagram below and answer the following questions:



8.5.1 Explain why the tide is higher at point B and D: (2)

_____

_____

8.5.2 What is the name given to the tides that occur when Earth, the Sun and Moon are aligned? (1)

_____

GRAND TOTAL [80]

TOM NEWBY SCHOOL

GRADE 7 NATURAL SCIENCE

TERM 4 FORMAL ASSESSMENT

PERFORMANCE ANALYSIS

Name and Surname:_____ Class:_____

Marks obtained:	**SECTION A [15]**		**SECTION B [45]**				**SECTION C [20]**	
	Q 1	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**
Possible mark	**8**	**7**	**17**	**13**	**10**	**5**	**7**	**13**
Learner mark								
SUB TOTAL	**60**						**20**	
TOTAL	**80**							