TOM NEWBY SCHOOL EXAMINATION

Subject	**Natural Sciences**	**Examiner**	**Mrs M. Fourie and Mr M. Hudson**
Date	**15 June 2016**	**Total marks**	**100**
Session	**2**	**Duration**	**2 hours**
Grade	**7**	**Moderator**	**Mrs M. Fourie**
Special instructions/ Equipment	**None**		

This Exam has been compiled using notes and information contained in the Tom Newby School book. 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. Up to 10% of the total mark allocation may be deducted for spelling and grammatical errors, except in the case of Language papers, where deductions are made according to a memorandum.

NAME: ___MEMO_____ GRADE 7: _____

INSTRUCTIONS:

1. **Answer all questions on the A-4 lined paper provided.**
2. **Read all the questions carefully before you start writing.**
3. **Rule off after each question/ section.**
4. **Look carefully at the mark allocation.**
5. **Set out your work very neatly.**
6. **Think before you INK! Do your best and good luck.**

SECTION A – QUESTION 1- FILL IN THE MISSING WORDS (5)

Fill in the missing word/s in the sentences that follow.

1. The periodic Table of Elements is a classification system that is presented as a table or a chart.
2. The part of a flower that contains the ovules is called the ovary.
3. A device or method that is used to prevent pregnancy is contraceptives/ condoms.
4. Plants that produce flowers are Angiosperms .
5. All of the living things in a particular place and their interactions with one another is called the Ecosystem.

QUESTION 2 – CORRECT SCIENTIFIC TERMS (5)

Give the correct scientific term for each of the following.

1. Organisms that feed on dead plants and animals are decomposers.
2. A process of change from an immature form to an adult form that differs in appearance is called a Metamorphosis.

3. A characteristic that enables a living thing to survive in its environment is called adaptation.
4. A very good conductor of electricity, that can be shaped into wires and is inexpensive, is called copper.
5. The temperature at which a liquid boils and turns into a gas is called the boiling point.

QUESTION 3 –MATCH THE COLUMNS (5)

Match Column A with the correct answer in Column B. Write only the letter next to the correct number, e.g. 1 C

COLUMN A	COLUMN B
1. Excretion	**A** Makes up 78% of the atmosphere. Produces protein.
2. Mixture	**B** Protozoa, which help to break down dead organic matter.
3. Nitrogen	**C** An impure substance made out of different physical properties.
4. Variation	**D** The differences between the living things of a same species.
5. Micro-Organism	**E** Getting rid of waste products.
	F A diverse range of animals.
	G A gas in the air that we breathe in.

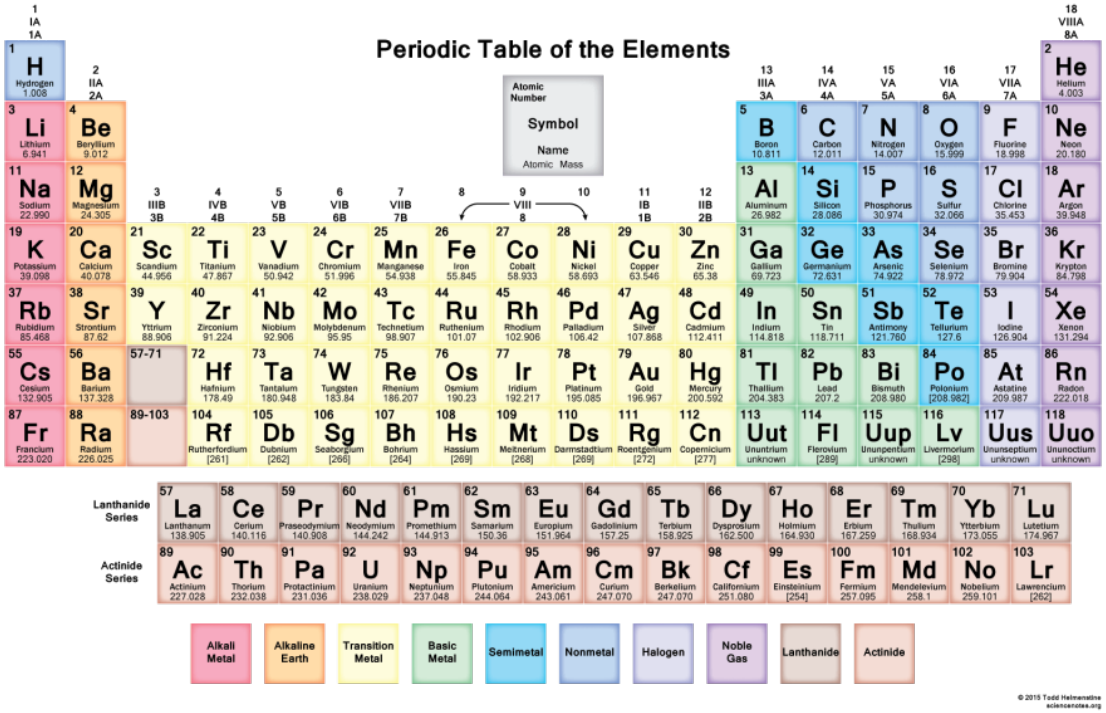
1. __E___ 2. __C___ 3. __A___ 4. __D____ 5. ___B____

QUESTION 4 –EXPERIMENT QUESTIONS (19)

4A. Look at the images above. It is a picture of a Bunsen Burner. Water is being heated up by the Bunsen Burner. Answer the questions based on the picture.

1. Explain what the term boiling point means. The temperature at which the liquid starts to boil. (1)
2. At what temperature does water boil? 100 º C (1)
3. What is the change of state that takes place when water boils? Liquid state to gas state (1)
4. Ethanol has a lower boiling point than water. What is Ethanol? Suggest a method of separation you would use to separate a mixture of Ethanol and water. Ethanol is like petrol or diesel. Separation method would be evaporation when the Ethanol evaporates and then condensation when the liquid condenses. (2)

4B. Use the Image of the Periodic table to answer the following questions.



1. Look at the left side of the periodic table and find number 3. Give the name of the element in figure 3. Lithium (1)
2. Is this element a metal, semi-metal or non-metal? Metal (1)
3. What is the element's atomic number? Li 3 (1)
4. Write down a name of an element right under this element group as this element. Sodium (1)
5. Write down the name of a semi-metal in the same period as this element. Sodium/ Potassium (1)
6. Write down the symbol for the element sodium. Na (1)

7. Is oxygen a non-metal? Why do you say so?
Yes oxygen is a non-metal as we breathe in oxygen daily
and oxygen is situated on the right side of the periodic table, classified as a non-metal. (1)
8. State whether the following elements are metals, semi-metals or non-metals or a gas. (5)
a) hydrogen gas/non-metal
b) phosphorous non-metal
c) helium gas/ non-metal
d) magnesium metal
e) silicon semi-metal
9. Give the symbol for the following elements: (2)
a) Potassium K
b) Chlorine Cl

QUESTION 5 -TRUE OR FALSE (10)
Say whether the following statements are TRUE or FALSE. If FALSE, correct it to make it TRUE.
1. Metals are arranged in the middle and on the right–hand side of the periodic table. False. It is on the left hand side.
(2)
2. Silicon is a semi-metal. True (1)
3. Acid tastes sour and feel slippery on the skin. False. Acid tastes bitter and feel rough on the skin (2)
4. Bicarbonate of Soda is used in making soup. False.
It is used in baking (2)
5. Examples of neutral substances include pure water, salt solution, sugar solution and cooking oil. True (1)
6. An example of an inherited characteristic is a tattoo or dyed hair. False. Eye colour/ hair colour is inherited (2)

QUESTION 6- TABLE INFORMATION (4)
Look at the table below and answer the questions related to the information given in the table.

VARIATION	DARK HAIR	FAIR HAIR	TONGUE ROLLER	NON-TONGUE ROLLER
GIRLS	14	7	12	6

BOYS	**8**	**6**	**10**	**7**

1. Which is the most common: tongue rolling or non-tongue rolling? Tongue – rolling as Girls have 12 and Boys have 10 that can roll their tongues. (1)
2. Which hair colour is the least common? Fair hair in Boys, only 6 (1)
3. How could the results achieved in this investigation be improved? Give two suggestions and explain why. We could test a larger sample of people, check more people.
We could test all the learners in a Grade. (2)

QUESTION 7- ACIDS AND BASES **(10)**

Answer the short questions below.

1. A base that can dissolve in water is called an alkali (1)
2. Name any citrus fruits that we have learnt about.
Oranges/ lemons/ lime (1)
3. Describe the taste of the fruit you named. They are sour and have acidity in them. Oranges are sweet but also have acidity in them. (1)
4. Are citrus fruit acidic or base? acidic (1)
5. Give a name of the acid or base that we find in citrus fruit.
Citric acid (1)
6. Describe how you would separate and collect all the materials from a mixture of play-sand, Smarties, iron filings, salt and water. List the steps you will use and write it in bullet point form.
* Step 1 – Use hand sorting to pick out the smarties.
* Step 2 – Filter the mixture to remove the play-sand and iron filings.
* Step 3 – Use a magnet to separate the iron filings from the sand.
* Step 4 – Use distillation and the Liebig condenser to separate water from the salt water, so salt stays behind.
* Step 5 – Evaporation can be used, which means the water will be lost or evaporate and the rest of the mixture will stay behind.
In this case the salt. (5)

QUESTION 8- FILL IN MISSING ONE WORD ANSWERS **(10)**

1. Give one word that summarises what each of the following spheres contain.
a) Hydrosphere water
b) Atmosphere air
c) Litosphere land (3)

2. Living organisms are grouped or classified to make it easier to study them. Biologists group living organisms according to their similar characteristics (4)

3. The brightly coloured parts of a flower are called the petals (1)

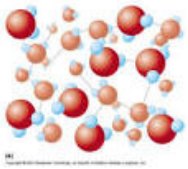
4. A foetus is an unborn baby that is still developing in a female's body (1)

5. Germination is the process when a seed starts to grow. (1)

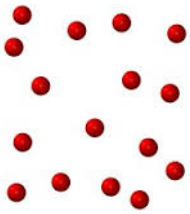
QUESTION 9- LONGER QUESTIONS AND EXPLANATIONS (14)

1. Look at the following images. Say whether they have loose or tight particles

a) Gold nuggets tight as pieces are identical



b) Particles Water in a tap loose Particles (2)



2. What is a pure substance? A pure substance is made up of only one type of particle and has the same properties all the way through. (1)

3. Give a definition of sieving? We use sieving to separate a mixture of solids that have particles of different sizes. A sieve has holes in it that are all the same size. The holes catch large particles and allow smaller particles to pass through. (1)

4. Give a definition of ink chromatography. It means colour writing. Ink chromatography is a method for analysing mixtures by separating them into the chemicals from which they are made. (2)

5. If we send a forensic scientist to a crime scene, what are they able to find to catch a criminal?

Ransom notes, Matching documents or objects from a crime scene, DNA samples, find fingerprints etc. (2)

6. The line along which all of the samples of ink were placed was drawn in pencil. Explain why it was in pencil. Pencil is not soluble in water. So no colours will "run" up the filter paper. (2)

7 What is a solvent? What solvent did we show you when looking at Ink chromatography? A solvent is something that can dissolve other substances e.g. a liquid can dissolve sugar or salt or powder.
We used water as a solvent. (2)

8. What is a pigment? A pigment is a substance that impacts black or white or a colour to other materials, especially a powdered substance that is mixed with a liquid, like water, oil or inks. (2)

QUESTION 10 HUMAN REPRODUCTION QUESTIONS (10)

1. For how many months is a woman pregnant? 9 months (1)
2. What do we call the baby in the first trimester or stage of pregnancy? An embryo (1)
3. How many male sperm cells are needed to fertilise an egg in a female's body? Only one (1)
4. What do we call the cycle when a girl starts to have monthly periods? Menstruation cycle (1)
5. A Grade 7 learner was trying to explain the process of the human reproduction cycle, but he muddled up the order of the cycle. Re-arrange the following by merely writing the correct order of the alphabet letters. (6)

A. The sperm arrive in the oviduct.
B. During sexual intercourse the sperm is propelled from the penis.
C. One sperm enters the outer cover of the egg to fertilise it.
D. The fertilised egg is implanted in the uterine lining.
E. The sperm travel from the vagina, through the uterus to the oviduct.
F. The egg is released from the ovaries and travel along the oviduct.

B E F A C D

QUESTION 11- RECYCLING PARAGRAPH (8)

Read the passage below and answer the questions that follow.

Plastic is an amazing material. It is inexpensive, strong and lightweight, and can resist damage by chemicals and sunlight. Plastics can replace natural materials such as ivory and wood. They help make cars and aeroplanes lighter, and thus more fuel. Their heat insulating properties help save a lot of energy that would otherwise be used for heating or cooling. Plastics have become very important material in our modern lives.

Plastics are manufactured from fossil fuels. Eight percent (8%) of world oil production goes into manufacturing plastics. The process of obtaining oil and processing it impacts the environment, for example, oil spills from drilling and from huge oil tanker ships.

Plastics lasts a very long time, but we usually use plastic objects only once or twice before throwing them away. Harmful chemicals added to plastics are absorbed by human bodies and can significantly affect our health. Plastic waste is sometimes swallowed by marine animals like turtles, dolphins and whales, and can injure or poison wildlife.

1. Why do we say plastic is an amazing material? It is inexpensive, strong, light weight and can resist damage by chemicals and sunlight. (2)
2. Name two useful things of plastic products. Any two, e.g. Plastics can replace natural materials like ivory and wood / They help make cars and aeroplanes lighter which makes these more fuel-efficient. (2)
3. Name two harmful things about plastics. It contains harmful chemicals/ It can enter the oceans and be swallowed by marine animals/ it can injure or poison wildlife/ it can pollute groundwater. (2)
4. Give a definition of recycling. Recycling involves putting waste material through a process to create new products, e.g. include plastics, paper, glass, metal, electronic equipment. (2)

Total: 100