

# END OF YEAR 2023 ASSESSMENT EXAMINATION

## S.2 CHEMISTRY

DURATION: 2HOURS AND 15 MINUTES

NAME:.....STREAM.....

### SECTION A - 50 marks (Answer all questions in this section)

1. Chemistry is one of the **most important subjects** taught at Secondary level of education. When you study chemistry, you not only acquire knowledge about many chemical reactions and other substances, but also you can take up various careers after your studies.

(a) Mention **three** reasons as to why you need to study chemistry subject. (03marks)

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- (b) What are some of the **three possible careers/job opportunities** that one can take on after acquiring the knowledge and skills of Chemistry?

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.....(02marks)

2. Objects we use in everyday life are made from materials, which are either plastics, ceramics, metals, wood, glass etc.

(a) State **two useful** properties of plastics, which make them popular. (01marks)

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(b) Plastic waste management is a challenge in our communities today. Poor disposal of plastics as shown in the picture below is a big threat to human health around Uganda.



What **dangers** do plastics pose to the environment and man?

*(03marks)*

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(c) Suggest **two possible solutions** to the threats plastics pose to the environment you have written in (a) above.

*(01 marks)*

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3. While you are in the laboratory carrying out scientific experiments, your safety is important. Safety can be ensured by using safety symbols indicated on the chemicals as shown below.



(a) What are **some of the importances** of the **above safety symbols** to a scientist like you?

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..... (03marks)

(b) Provide a use for each of the laboratory apparatus shown below. (02marks)

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2

3

4



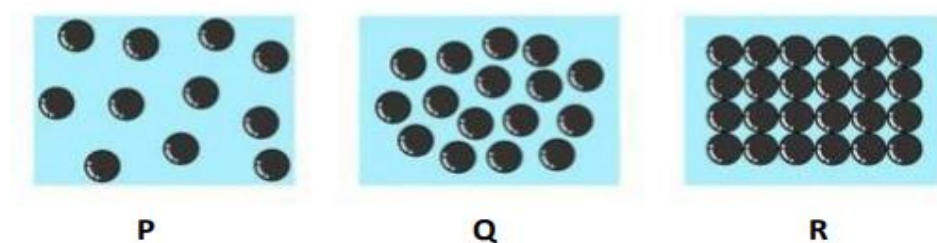
1.....

2.....

3.....

4.....

4. Below are diagrams showing different states of matter. Use them and answer the questions that follow



(a) Zamzam is one of the residents of Bushenyi, she stays near a small lake which supplies them water for home use, however due to the cold temperatures, **all the water in the lake got frozen** into ice. Explain how she **can recover water for use again from this frozen lake**. *(03marks)*

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(b) State **one property** of each state of matter shown above as a result of arrangement of particles and the attractive forces between them. *(02marks)*

**P**.....

**Q**.....

**R**.....

5. Students were asked to identify examples of changes that can take place using the same component (s) of air in the atmosphere. A student called Sharon mentioned combustion of charcoal and the rusting of iron.

a) Identify which component (s) of air that is/are necessary for the combustion of charcoal and rusting of iron. *(01 mark)*

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b) What is the similarity between the above two chemical changes? **(01 mark)**

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c) What makes rusting of iron different from combustion of charcoal? **(01 mark)**

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d) State any one effect of incomplete combustion of charcoal to the environment. **(01 mark)**

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(e) Green plants can be able to manufacture their own food in form of starch by a process known as.....and the component of air that is necessary for this process is called..... **(01mark)**

6. A wasp sting having a pH of above 7 causes sharp pain, itching and swelling. Use of fresh lemon juice is one of the effective treatments for wasp stings. Fresh lemon juice soaked in cotton wool is bandaged on the affected area as a treatment.

(a) Explain why the sharp pain, itching and swelling caused by wasp sting are reduced with application of fresh lemon juice. **(03marks)**

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(b) Tom is suffering from ulcers because he has not been eating food in time and has been eating a lot of oranges, raw mangoes, apples which have increased on the acidic content in his stomach. Which advice can you give to Tom as far as his body health in concerned. **(02marks)**

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7. Food cooked without common salt is tasteless to S.2 students. Only people suffering from hypertension (high blood pressure) and other heart related illnesses are advised to eat food without salt. This is because the ions of the chemical elements in salt can worsen their health conditions.

a) Identify the chemical elements present in the common salt. (01mark)

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b) Write the formula of the ions of the elements in the common salt (01 mark)

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c) Apart from adding flavour to food, state any other two uses of common salt (02 marks)

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(d) Dilute sodium hydroxide solution reacts with dilute hydrochloric acid in a neutralization reaction. What is a neutralization reaction? (01mark)

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8. A group of S.2 students from Kampala went for a field study in one of the largest limestone quarries in Tororo, Eastern Uganda. Limestone is used in the production of cement. Cement is one of the components of concrete.

a) Write the **chemical formula** of the main component of limestone used for manufacture of cement. (1/2mark)

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b) Other than cement, name any other three materials that can be used for making concrete

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.....(1½ marks)

c) Mukasa bought his piece of land on a rocky area but every time he complains, why he spent all his money on buying that land, Advise Mukasa that his land has got a lot of benefits

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.....(03marks)

9. Study the table below showing elements S, T, U, V and W with the corresponding member of subatomic particles.

Element	Protons	Neutrons	Electrons
S	10	10	10
T	9	10	9
U	12	12	12
V	3	4	3
W	16	6	16

a) Identify the elements, which are likely to form (02mark)

(i) **Anions**.....

(ii) **Cations**.....

b) Use the table above to complete the table below (03marks)

Element	Atomic number	Mass number
W		
S		
V		

10. Joy a senior two student made juice that he sold to students during the inter-house sports competition to quench their thirst by mixing passion fruit, water and sugar. He then separates the passion fruit seeds from the mixtures and adds sugar to sweeten the juice.

a) Name the method by which passion fruit seeds are separated from the mixture. (01 mark)

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b) Give a reason for your answer in (a) above (01 mark)

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c) Name one other pair of a mixture that can be separated by the method in (a) (01 mark)

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d) What do you expect to have happened to the sugar crystals when added to the fruit juice?

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..... (01mark)

e) Identify any one method of separation of dust and small stones from food that you use at your home. (01mark)

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**SECTION B (Answer any 2 questions from this section on the answer sheets)**

11. **Water is one of the basic needs of life.** Without water, we cannot survive. However, one of the biggest challenges, which is faced in Uganda today, is water pollution caused by man as shown below.

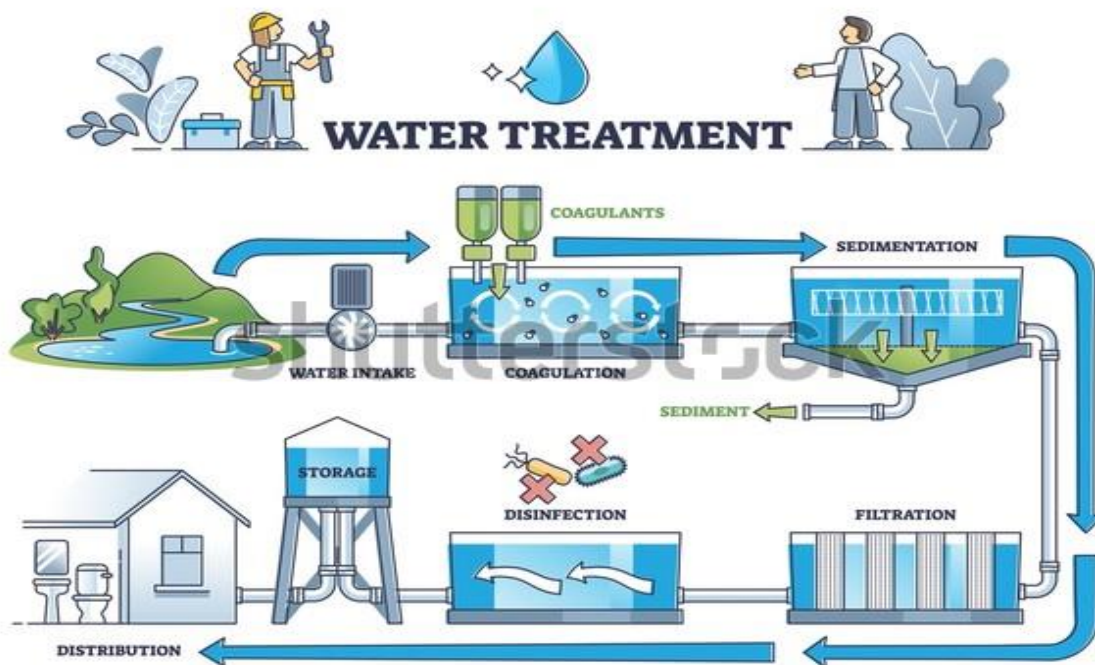


a) What are the various ways in which water gets polluted in your community? (04marks)



b) Suggest some of the possible solutions to the challenge of water pollution in Uganda. (03)

Water treatment is important in ensuring safe and clean water for consumption. This process involves a number of stages as shown in the figure below.



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c) Explain any four stages that are involved in the water treatment process (06marks)

d) Identify any two sources of water you know (02marks)

12. Chemistry has contributed to the society both positively and negatively.

a) Explain any three ways in which chemistry has contributed

(i) Positively to the society. (06marks)

(ii) Negatively to the society (06marks)

b) Mention any three sectors where chemistry plays an important role in the economy of Uganda. (03marks)

13. (a) You are provided with two solutions A and B. The pH of solution A is 6 and the pH of solution B is 3.

(i) Which solution has more hydrogen ion concentration (01mark)

(ii) Explain your answer in (a)(i) above (02marks)

(b) Explain why sulphuric acid is a strong acid while carbonic acid is a weak acid. Write equations to support your explanation. (06marks)

(c) Outline any four uses of acids in your society (04marks)

(d) Outline any four sources of alkalis in your community. (02marks)

14. There is a strong global movement on the issue of global warming and greenhouse gas effects. Uganda is part of this movement. The challenges of global warming and effects of greenhouse gases are caused by both urban environment and local communities as shown in the figure below.



As a learner of Chemistry, prepare a presentation for your community on a radio talk show about global warming and greenhouse effects. In your presentation:

a) Give a simple explanation of the meaning of **global warming and greenhouse gases**

(03marks)

b) Give examples of how urbanization is greatly contributing to **global warming and greenhouse gases**.

(04mark)

c) Give examples of how your local community is also contributing to **global warming**.

(04marks)

d) Suggest the possible ways of reducing global warming or the effect of greenhouse gases

(04marks)

END