



**NCDC**

*NATIONAL CURRICULUM  
DEVELOPMENT CENTRE*

**End of Year Sample  
ASSESSMENT ITEMS FOR S.1 AND S.2**

**CHEMISTRY**

**2022**

# SENIOR TWO CHEMISTRY SAMPLE QUESTIONS

## *Guidance to Teacher*

The end-of-year assessment consists of both short response items and extended response items.

**Short Response Items** Require learners to construct a response that is concise and focused. It may be factual, interpretive or a combination of the two. The short response items focus on the learner's mastery of knowledge, understanding and skills used to perform a task or solve a problem. The scoring guide for these items should include the criteria/indicators for each score awarded.

**Extended Response** Items are derived from an integration of knowledge, understanding and skills used to perform a task or solve a problem. The integration can cut across topics and subjects with related concepts. The item must have a context/problem/situation, instruction/expected output and may include a support/stimulus material. The item should focus on tasking the learner to provide a solution to a problem. The scoring guide for these items should include a grid that has relevance, coherence, accuracy and excellence criteria with their respective indicators.

- The emphasis of the test items is to promote higher order thinking skills.
- Refer to the teaching syllabus as a guide on what to assess in terms of the skills, knowledge, values and understanding defined by the intended learning outcomes. Use the LO(s) to develop test items.
- The marking guide should clearly describe what a learner must do to meet the set criterion as evidence of achievement of the LO(s).

**Item 1** was developed from the following Los:

- *Explain the concept of pH as a measure of the strength of acids and alkalis (u)*
- *Apply the knowledge of reaction between acids and alkalis*

**Item 2** was developed from the following Los:

- *Know and appreciate the impact on the environment of burning carbon- based fuels*
- *Understand the processes of making charcoal but recognise that the use of charcoal as a fuel is cheap, efficient and sustainable only if it is made from wood that can be regrown easily.*

**Time: 1 hour 30 minutes**

**Section A:** 3 items

**Section B:** 1 item

**Section A: Short Response Items**

1. The human stomach contains hydrochloric acid with a pH of about 2. The acid helps to kill any germs in our stomach. However, when the stomach walls produce too much of the acid, we suffer from stomach pains and heartburn. One way to deal with this problem is to take an antacid. The main component of antacid is sodium hydrogen carbonate.
  - a. Explain how the antacid helps to cure heartburn. **(3 scores)**

**Section B: Extended Response**

2. In Nakasongola, people make charcoal from burning wood. Jimmy has just migrated to Nakasongola and wants to make charcoal from wood like the rest of his neighbours. He piled pieces of wood, introduced fire underneath and left them to burn overnight. In the morning, he found a hip of ash with very little pieces of charcoal, not strong enough like what his neighbours make.

As a friend to Jimmy who understands the process of charcoal making, write a letter to advise him on how to make charcoal. **(10 Scores)**

## S2 CHEMISTRY MARKING GUIDE

### Section A: Short answer item

The human stomach contains hydrochloric acid with a pH of about 2. The acid helps to kill any germs in our stomach. However, when the stomach walls produce too much of the acid, we suffer from stomach pains and heartburn. One way to deal with this problem is to take an antacid. The main component of antacid is sodium hydrogen carbonate.

- a. Explain how the antacid helps to cure heartburn. **(3 scores)**

#### Expected Solution

*The sodium hydrogen carbonate that is introduced is a weak alkali. When it reacts with the excess acid in the stomach, it produces a salt (sodium chloride), water, and carbon dioxide gas. The salt formed is neutral on the body, the gas is breathed out and the water is absorbed by the body making the person feel better.*

#### SCORING GUIDE.

- *Score 3 if learner identifies sodium hydrogen carbonate as an alkaline substance, mentions the reaction between alkali and acid, products; and indicates that the salt formed is harmless to the body and person feels better.*
- *Score 2 if learner identifies sodium hydrogen carbonate as an alkaline substance, mentions the reaction between alkali and acid, products; but does not indicate that the salt formed is harmless to the body and person feels better.*
- *Score 1 if learner identifies sodium hydrogen carbonate as an alkaline substance only, but does not mention the reaction between alkali and acid, products; and does not indicate that the salt formed is harmless to the body and person feels better.*

### Section B: EXTENDED RESPONSE

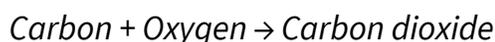
In Nakasongola, people make charcoal from burning wood. Jimmy has just migrated to Nakasongola and wants to make charcoal from wood like the rest of his neighbours. He piled pieces of wood, introduced fire underneath and left them to burn overnight. In the morning, he found a hip of ash with very little pieces of charcoal, not strong enough like what his neighbors make.

As a friend to Jimmy who understands the process of charcoal making, write a letter to advise him on how to make charcoal. **(10 scores)**

## Response

Key points to look out for in the letter and the flow of the points in the letter.

1. The wood is covered to limit the amount of air entering.
2. In absence of air the wood burns to form carbon.
3. When the wood is not covered, oxygen from air reacts with the carbon to form carbon dioxide. The wood will burn out completely to form ash because of the presence or oxygen which supports burning.



4. The salts in the wood to form ash instead of the charcoal.
5. From now on, Jimmy should burn the wood in a limited supply of air to obtain the charcoal.
6. The heap of wood should be covered with plant leaves and soil on top to limit the amount of oxygen during the burning process.
7. The wood should be left to burn for a period of about 24 hours.

Output	Basis of evaluation	Relevance	Accuracy	coherence	Excellence
Letter to Jimmy	Procedure for making charcoal	Score 3 if the letter identifies 6-7 related to the procedure making charcoal.	Score 3 if the letter identifies 6-7 conditions and reasons for the process of making charcoal are correct.	Score 3 if 6-7 points in the procedure are presented logically.	score 1 when a student uses an equation to explain the combustion process and its products.
		Score 2 if letter identifies 3-5 points related to the procedure of making charcoal.	Score 2 if 3-5 conditions and reasons in the letter are correct.	Score 3 if 3-5 points in the procedure are presented logically.	
		Score 1 if less	Score 1 if	Score 1 if	

<b>Output</b>	<b>Basis of evaluation</b>	<b>Relevance</b>	<b>Accuracy</b>	<b>coherence</b>	<b>Excellence</b>
		<i>than 3 points are related to the procedure making charcoal.</i>	<i>less than 3 conditions and reasons in the letter are correct.</i>	<i>less than 3 points in the procedure are presented logically.</i>	



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