

545/1

CHEMISTRY

Paper 1

2024

2 hours



UNNASE MOCK EXAMINATIONS

**UGANDA CERTIFICATE OF EDUCATION
CHEMISTRY PAPER 1**

2 HOURS

INSTRUCTIONS TO CANDIDATES:

- This paper consists of two sections; A and B.
- It has six examination items.
- Section A has two compulsory items.
- Section B has two Parts; I and II. Answer one item from each part.
- Answer four items in all.
- Answers to Section A must be written in the spaces provided while those of Section B must be written on the answer booklet(s) provided.
- Any additional item(s) answered will not be scored

ITEM 1

In a remote village with limited access to modern medical facilities, the nearest clinic is very far away, and transportation options are scarce. The villagers rely on each other for medical advice. Recently, **bacterial infections** have been increasing, but there is lack of awareness about proper medication to use.



Overview of Bacterial Infections

Bacterial meningitis

- *Streptococcus pneumoniae*
- *Neisseria meningitidis*
- *Haemophilus influenzae*
- *Streptococcus agalactiae*
- *Listeria monocytogenes*

Otitis media

- *Streptococcus pneumoniae*

Pneumonia

Community-acquired:

- *Streptococcus pneumoniae*
- *Haemophilus influenzae*
- *Staphylococcus aureus*

Atypical:

- *Mycoplasma pneumoniae*
- *Chlamydia pneumoniae*
- *Legionella pneumophila*

Tuberculosis

- *Mycobacterium tuberculosis*

Skin infections

- *Staphylococcus aureus*
- *Streptococcus pyogenes*
- *Pseudomonas aeruginosa*

Sexually transmitted diseases

- *Chlamydia trachomatis*
- *Neisseria gonorrhoeae*
- *Treponema pallidum*
- *Ureaplasma urealyticum*
- *Haemophilus ducreyi*

Eye infections

- *Staphylococcus aureus*
- *Neisseria gonorrhoeae*
- *Chlamydia trachomatis*

Sinusitis

- *Streptococcus pneumoniae*
- *Haemophilus influenzae*

Upper respiratory tract infection

- *Streptococcus pyogenes*
- *Haemophilus influenzae*

Gastritis

- *Helicobacter pylori*

Food poisoning

- *Campylobacter jejuni*
- *Salmonella*
- *Shigella*
- *Clostridium*
- *Staphylococcus aureus*
- *Escherichia coli*

Urinary tract infections

- *Escherichia coli*
- Other Enterobacteriaceae
- *Staphylococcus saprophyticus*
- *Pseudomonas aeruginosa*

This raises concerns about misuse and development of drug resistance.

As learner of chemistry, you have an opportunity to meet them in one of their village meetings;

Task:

(a) What are the possible types of drugs or medicines you can advise them to treat the infections?

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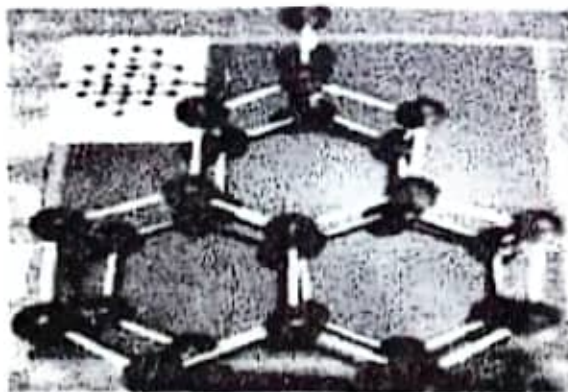
(b) Carefully educate them on what the drugs exactly do.

(c) Advise them on the challenges associated with the drugs and medicine use and consequently how to select the medicine to use

ITEM 2

A group of senior 3 students is considering a project to develop a device combining electronic performance, heat management, and durability. They have learned that graphite has unique properties

that could be utilized.



They would want to understand it better so that they can make high-performance electronic devices.

TASK:

(a) Write down what can help them to know its nature

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(b) Point out how suitable it is to their project

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(c) Caution them on its environmental concerns

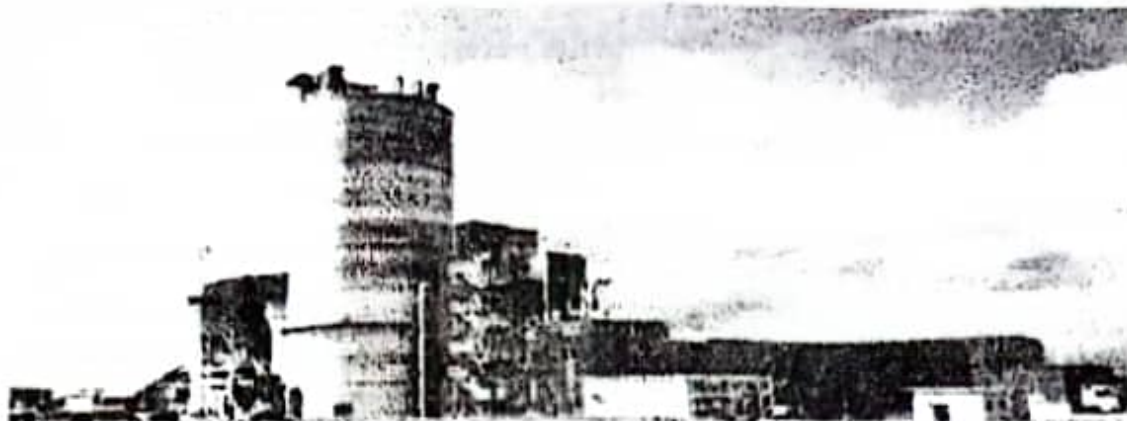
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TASK:

Write down all the necessary information that is needed by the local residents.

Part II

Answer one item from this part.

ITEM 5.

Uganda is blessed with rocks and minerals. However, their exploitation is causing more harm than good to the environment. The government wants to raise public awareness about this issue through school debating competitions on the theme; **"EXPLOIT NATURAL RESOURCES RESPONSIBLY"**



Task:

Write down the chemistry information which can be extended to the public in these debates.

SECTION B
PART I

Answer one item from this part.

ITEM 3

Farmers in a rural area petitioned the government to establish a local ammonium fertilizer manufacturing plant, which would provide a steady supply of affordable fertilizers. The government agreed to the proposal, but other residents are concerned about the environmental impact of the factory.



To prevent resistance and ensure the project's success, it is crucial to provide the residents with adequate information and about the production process and its environmental safeguards.

TASK:

Write down all the necessary information that is needed by the residents.

ITEM 4

Builders in Uganda have been experiencing collapsing structures due to poor cement quality. To improve their situation, they requested the government to build local cement manufacturing plant since there are required raw materials in Uganda and avoid relying on its importation. The idea is to produce cement of good quality at subsidized prices. Although the government approved the plans, local residents are concerned about manufacturing process and potential environmental impacts from the cement plant. To avoid resistance from the locals, it is essential to provide them with clear information about the production process, environmental safeguards and benefits.

ITEM 6.

The government plans to build a new oil refinery in the Kadam-Moroto Basin to exploit the natural resource and reduce on fuel prices. However, there is need to educate local residents about the natural resource, its environmental impact and importance first.



The science club at your school has volunteered to do the sensitisation during holidays.

TASK:

Write the chemistry you would need to pass over to the residents

END