

INSTRUCTIONS.

SI CHEMISTRY
GUIDE

- This paper consists of two sections A and B.
- Attempt all questions from section A and any 2(two) in section B.
- Answer to section A must be written in the spaces provided.

SECTION A

1. Betty, a senior one student wants to separate sand and water from their mixture.
(i) identify any two different methods Betty can use to separate the mixture
(1mark)

...Filtration.....

...Decanting.....

- (ii) Briefly describe the procedures of any of the above methods Betty can follow to separate her mixture.
(3marks)

...To a funnel containing a filter paper; mounted on a beaker;.....
...add the water-sand mixture; allow the set up to.....
...stand for some time till when all the water filters off

2. Odong took two beakers A and B, to A added hot water, to B added cold water. He then added potassium permanganate to each at ago. He observed that hot water in A turned purple faster than the cold one in B.

- (i) Identify the property responsible for the colour change in both beakers
(1mark)

.....Diffusion in fluids.....

- (ii) Explain why hot water turned purple faster than the cold one. (03mark)

...Kinetic energy is directly proportional to temperature; so molecule
...in hot water move faster than that in cold water thus....
...turning purple faster than in cold water.

3. Three beakers X, Y and Z are taken, beaker X is half filled with tap water; beaker Y is half filled with boiled water, beaker Z is left empty. Iron nails are added to all the three beakers. And a layer of oil to beaker Y. With reason state what was observed in

each beaker.

- (i) X ... Brown coating on the surface of the iron nails; oxygen, water and iron were all present (01mark)

see; iron nails
rusted

- (ii) Y. Iron nails remained clean; ^{No oxygen due to boring and oil layer} acc. no rusting took place (01 mark)
- (iii) Z. Iron nails remained clean; NO water (01 mark)

4. Previously in Uganda, petroleum has been discovered in the western region of Uganda. After the extraction of petroleum, how will the discovery of petroleum contribute to the development of Uganda? (04 marks)

Acc; any four

....Creat jobs for Ugandans.....
Provide cheap petroleum products to ugandans.....
Development of enfrustructures like roads.....
Increased tax and income to the government.....

5. The knowledge of chemistry has improved peoples' lives through manufacturing of medicine, detergents for cleaning and many others. However its knowledge has also been misused in different ways. What are some of the different ways in which the knowledge of chemistry has been misused

(04 marks)

Acc; any four.

..Increase industrial fumes causing air pollution.....
 ..Plastics, polythen bags and glass bottle; soil pollution.....
 ..Agrochemicals; land and water pollution.....
 ..Nuclear weapons; deadly for human life.....

6. Using kinetic theory of matter. Explain the following observations.

(i) The air pressure in the tubes with in a car tyre increases after a very long journey drive on a hotter day (02 mark)

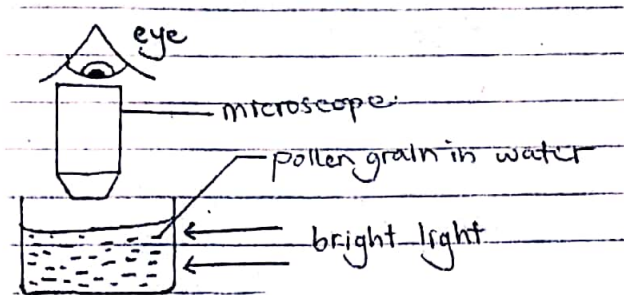
..Kinetic energy is directly proportional to temperature; hot day.
 ..increased collision of air particles and the tire tube; increased pressure

(ii) When a drop of spirit is put on your skin of the hand, you feel cold as the drops evaporats. (02 mark)

..Spirit evaporates after gaining heat from the body; escaping
 ..with the body's heat leaving it cold:.....

7. In an experiment to investigate the existence of particles of matter, Abdul and Tonny carried out the experiment below; they poured powdered pollen grain particles on to

water in a glass beaker and then passed a beam of light into the beaker. When each one of the students observed through the microscope, they saw pollen grain particles moving in a zig zag pattern.



(a) i state why the pollen grain particles were seen moving in zig zag pattern. (01 mark)

...It is due to brownian motion / Acc: water particles are in a continuous random zig zag motion. (01 mark)

(ii) Give a reason for your answer

...Water particles are in a continuous random motion; collide with pollen. (01 mark)

(b) Supposing Addul and Tonny increased the temperature of water state what they observed

...Increased speed in a zig zag pattern. (01 mark)

(ii) Give a reason for answer

...It's due to increased kinetic energy; due to heat gain. (01 mark)

8. Outline four ways how you can conduct yourself in the laboratory during a chemistry experiment to ensure that everyone in the laboratory is safe. (04 mark)

Be silent in the laboratory.
Avoid unnecessary movements.
Avoid conducting authorised experiments.
Dress properly while moving to the laboratory.

9. With a reason classify the following examples of changes that occur in our everyday life as either physical or chemical changes

(i) Rusting of iron sheet

Chemical; A new substance is formed (Rust). (01 mark)

(ii) Burning of wood

Chemical; A new substance is formed (ash). (01 mark)

Acc: any
Four lab rules

(iii) Evaporation of water

(01 mark)

1

...Physical; No new substance formed.....

(iv) Rotting of meat

(01 mark)

...Chemical; A new substance is formed.....

10. In a certain school, the toilet is near the senior one class. The foul smell disturbs the students in the class and the smell becomes much more on the hot day.

(i) Explain briefly how the smell molecules are able to move from the toilet up to the classroom (02 mark)

...By diffusion; (air) gas molecules collide with small molecules making them reach the class.....

(ii) Explain why the smell from the toilet become more during the hot day. (02 mark)

...It due to increased temperature; increasing the rate of diffusion.....

SECTION B

Q 11 a (i) clothes

On a dry hot day ~~clothes~~ dry due to evaporation of water from the clothes once heated by the rays from the sun.

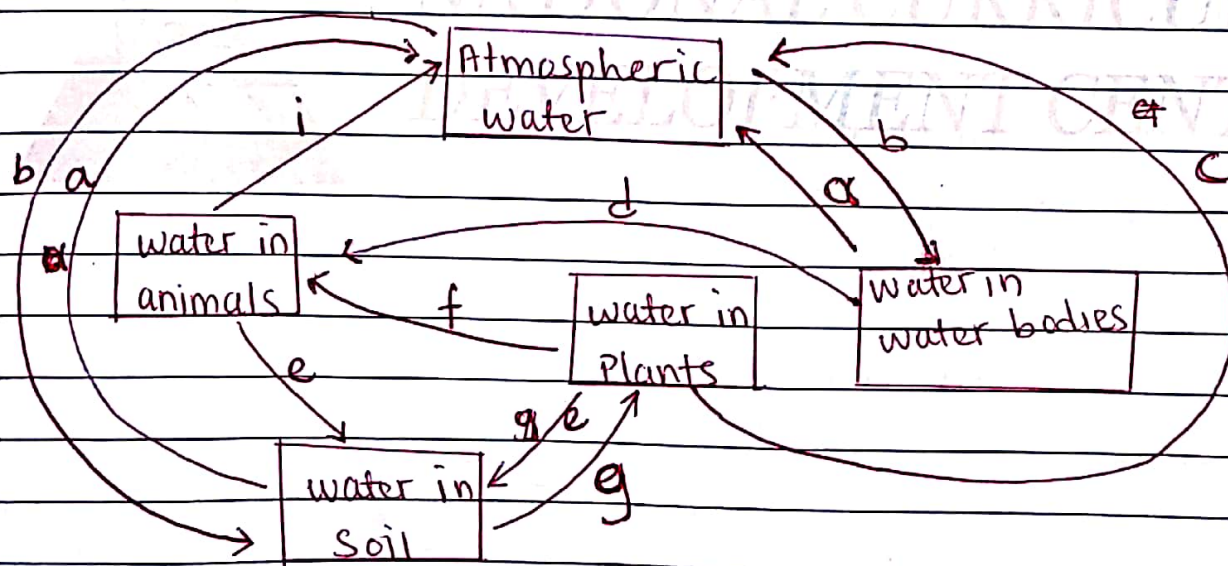
11 a (ii)

Inside the house clothes dry because of evaporation and the flowing nature/property of water which drip out of the clothes; evaporation occurs at all temperatures

11 a (iii)

On a windy day air particles blow water molecules out of the clothes and carry it along leaving the clothes dry.

11 b (i)



a; Evaporation/Transpiration

b; Rain fall/raining

c; Transpiration

d; Feeding/drinking

e; Death/decomposition/excretion

f; Feeding

g; Absorption

h

i; Sweating

11 b(ii)

Used in agriculture to grow crops

Used as a raw material in industries

Used for domestic uses like cooking

Acc. any
3 uses of water
to man

12 (i)

Positively;

Contributed to provision of jobs to the society
people like doctors etc.

Contributed to food processing like bread; biscuits
and many other industrial feeds.

Improved agriculture through agrochemistry.

Improved people's health through pharmaceuticals
like medicines.

led to production of products like home utensils
and packaging materials; simplifying life.

Production of beverages like sodas, juices and
alcohols contribute towards refreshment.

Acc.
any five uses of
knowledge from chemistry

- Products like polythene bags and plastics pollute the land/soil affecting agriculture.
- Combustion of products from chemistry like polythene and plastics lead to air pollution.
- Agrochemicals like fertilizers spoil the soil and once washed into water bodies pollute water.
- Industries greatly add their wastes into the the atmosphere causing air, land and sound pollutions
- Nuclear plants have greatly affected nature since it has led to a number of mutations.
- Aerosols like perfumes and car fumes have greatly affected the ozone layer

Acc. any five
side effects of any
chemical production
the society/environment.

12 (II)

Agriculture
Beverages
Construction
Defence
Health

acc. any 5 areas

12 (III)

- Polythene bags
- Medicine
- Petrol fuel
- Cosmetics
- Fertilizers (agricultural)

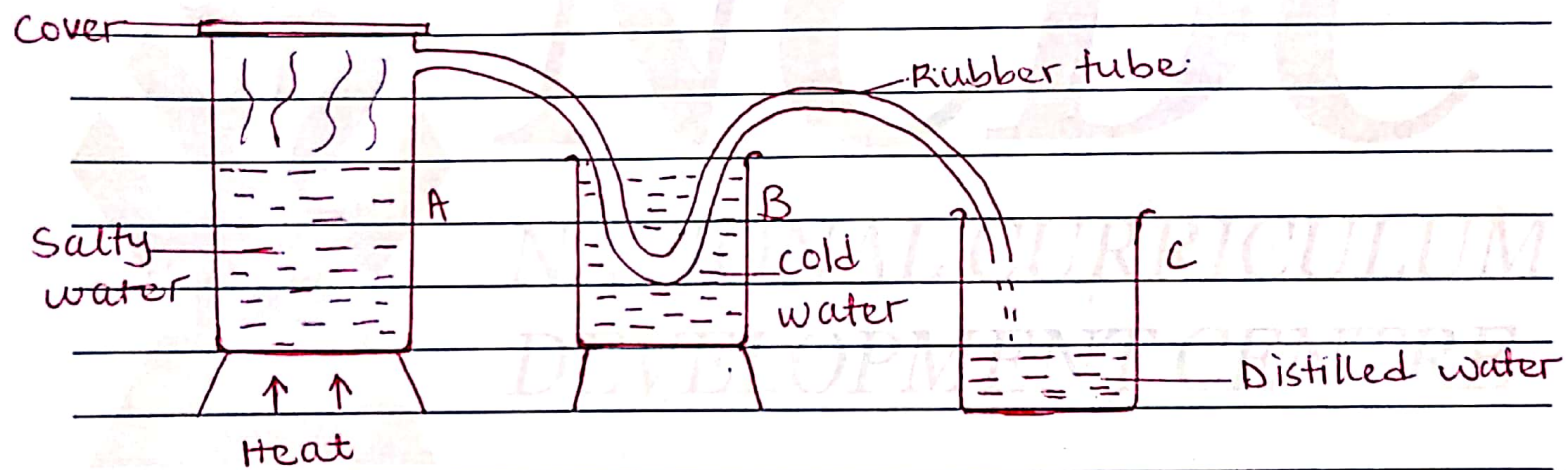
acc. any 5 products.

13

This can be solved by distillation of the water materials

- 3 big drums
- long hollow rubber tube
- Cold water
- Heat source

~~Procedure~~ Illustration



Procedure

- Arrange the set up as shown above
- Collect the soft water at drum C now ready for society consumption.

Accept any other
way of softening
water

Once burnt polythene bags add dangerous fumes to the atmosphere which lead to air pollution.

Fumes from burnt polythene bags can lead to global warming since some are green house gases.

Fumes from burnt polythene destroy the ozone layer leading to direct U.V rays on earth with its effects.

Polythene bags affect water penetration into the soil affecting soil fertility.

Once driven to water bodies they cause its pollution.

acc. any free

NO 14 (ii)

This can be done by;

- Rejecting the use of polythene bags in our societies.
- Recycling the waste polythene bags back to the industries/producers.
- Reducing its use in the environment.
- Re-using polythene bags for other uses like vegetable farming and making craft work.
- Using other products like paper bags in preference to polythene bags.
- Government should ban use of polythene bags in our country.