Name.....**Signature**.....
Personal **number.** .....

545/1

CHEMISTRY.

(Theory)

C.B.C

Time. 2 hours.

June/022.

CHEMISTRY DEPARTMENT

Lower secondary education

Competence Based Curriculum (C.B.C) Examination

CHEMISTRY S.2

Time. 2 hours.

INSTRUCTIONS;

•*Attempt* **all** *questions . Answers to all questions must be written in the spaces provided.*

Table for Examiner's use only.

Number	Marks	Signature.
1		
2		
3		
4		
5		

1. From the time of creation up to dates, man did a lot of exploration in finding about uses of things that make his surroundings meaningful. Man exfoliated a lot of ideas on how things that surround him can be turned into many more useful materials, this partly makes up what we call **chemistry**. Chemistry is a subdiscipline of science, that deals with the study of matter and the substances that constitutes it . It also deals with the properties of these substances and the reactions undergone by them to form new substances .

Chemistry is around us and involved in everything we need , do and interact with in our everyday lives. Below are some of examples of chemistry in our lives.

(a)Use the chemical reactions shown in the diagrams below and fill in the spaces below. (08 marks)

- Green plants use a chemical reaction called ..... to convert carbon dioxide and water into food(glucose). It avails food to plants and animals.
- ..... involves the break down of food

substances into smaller soluble particles that can be absorbed into the body.

- **.....** is a process by which yeast and bacteria break down sugars.
- **.....** use the chemistry of storage of chemical energy and converting it to electrical energy.
- The process by which fuels react with oxygen from air producing heat and light energy is called**.....,** it is employed in heating of substances.
- **.....** is a substance formed when iron reacts with oxygen and water. It weakens iron articles; and makes iron cutlery tools such as kitchen knives blunt.
- Regular**.....** of hands with water and soap involves chemistry of soap removing germs from our hands.
- **.....**is used in making products such as breads, cakes; pan cakes, cookies, doughnuts and all other product made from flour. The process helps in raising the dough of flour and also preserves such foods.

(b) state two ***applications*** of ,

(i) Fermentation. (02 marks)

.....

.....

.....

(ii) Batteries. (02 marks)

.....

.....

.....

(c) State two examples of ***combustion*** in our daily life.

(02 marks)

.....

.....

2. A laboratory is special place where science experiments are called from.

In carrying out experiments; Chemistry is a ***laboratory science***; it requires a special room for carrying out experiments. This room is called a ***laboratory***

Equipment used in the laboratory to conduct different experiments are usually called ***Apparatus***. Using the knowledge of chemistry laboratory apparatus,

Some apparatus is glass ware; others are made of plastics; others are made of metals while others are wooden. A chart of different apparatus in the laboratory is provided on **page 5**. Study it and answer the questions that follow.

(a)Name the apparatus shown by numbers **1** to **10** (09 marks)

i) **1**.....

ii) **2**.....

i) **3**.....

ii) **4**.....

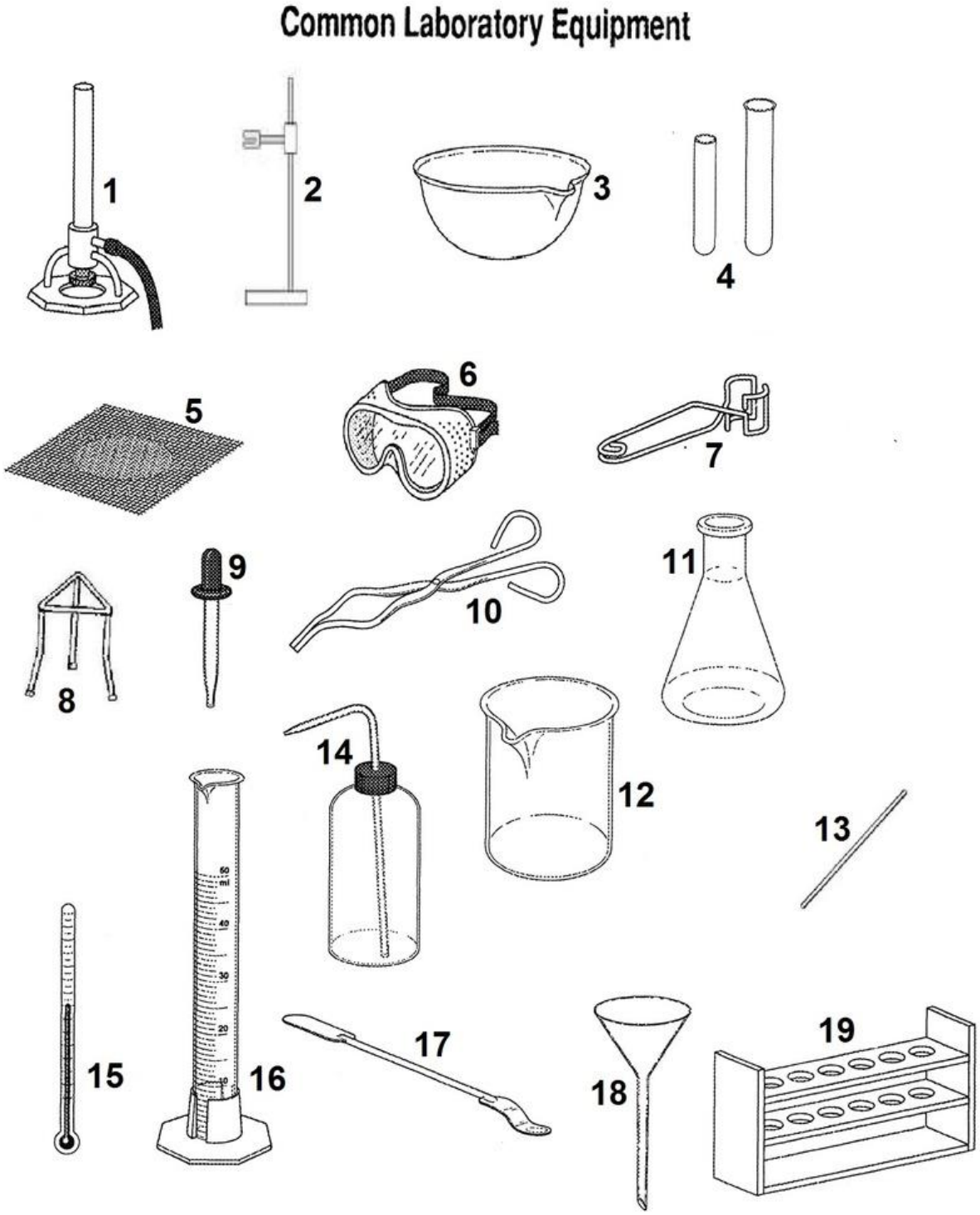
iii) **5**.....

iv) **6**.....

v) **7**.....

vi) **8**.....

vii) **9.**.....



(b)The use of each apparatus **10 to 19** is *given* below, **write** the **number** of

the apparatus to its use. (10 marks)

(i) Measuring the temperature of substances in the laboratory.....
(ii) Measuring volumes of liquids.....
(iii) Used in dispensing distilled water.....
(iv) To pick up and hold apparatus.....
(v) For mixing and containing solutions.....
(vi) Holds test tube in upright position.....
(vii) Transferring solid chemicals in small amount.....
(viii) Used for filtration and in easily directing liquids and solutions.....
(ix) Containing reaction solutions, used in titration.....
(x) Used for stirring .....

3 Matter is anything that occupies space and has weight. Matter exists in different ***States*** . A ***state*** of matter is one of the distinct physical forms in which matter exists.

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

P **Q** **R**

(i) Name the state of matter,

P (01 mark)

.....

Q (01 mark)

.....

R (01 mark)

.....

(ii) Complete the table below for the properties of states **P, Q** and **R**
(08 marks)

State of matter	How particles are arranged	Attractive forces of attraction between particles
P		
Q		Very weak.
R		

(iii) State the properties of each state of matter as a result of arrangement of particles and the attractive forces between them.

P (03 marks)

.....

.....

.....

Q (03 marks)

.....

.....

.....

R (03 marks)

.....

.....

(b) In the table below; name the ***process*** for the change of state of matter and in each case; state whether ***heat energy is absorbed*** or ***heat energy is released*** during the change of state

(03 marks)

Change of state	Name for the process	State whether ***heat energy is absorbed*** or ***heat energy released*** during the change of state
R to **P**		
Q to **R**		
P to **Q**		

(c) Use particle theory of matter and explain the following observations.

(i) An inflated balloon expands and eventually bursts on leaving it exposed to sunshine . (03 marks)

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(ii).An inflated balloon eventually shrinks when left on a cemented floor for 3 days. (03 marks)

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(iii).You can easily squeeze a plastic gas syringe that is completely filled with air, than squeezing the one which is filled with water.

(03 marks)

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(iv)When tea bag is put in a cup of hot water; colourless water changes to dark brown. (03 marks)

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4. Products we use in every day life are made of different ***natural*** and ***synthetic*** materials. These materials can be wood, plastics; ceramics, metals or glass. These materials can be ***recyclable*** or ***non -recyclable***.

(a)Distinguish between,

(i) ***Natural*** and ***synthetic*** materials. (02 marks)

.....

....

(ii) ***Recyclable material*** and ***non recyclable material.*** (02 marks)

.....

.....

.....

.....

.....

(b) (i) **Classify** the following substances as ***recyclable*** or ***non-recyclable***

(07 marks)

Material	**Classification**.
Steel cans.	.....
Glass bottles.	.....
Garbage.	.....
News papers.	.....
Medical wastes.	.....
Iron containers.	.....
Clothes.	.....

(ii) state two ***advantages*** of recycling of materials. (02 marks)

.....

.....

.....

.....

(c).Plastics are ***polymers*** which are **synthetic.** Plastics are classified as ***thermosoftening plastics*** or ***thermosetting plastics***.

(i) State what is meant by the term ***"Polymer" ?*** (01 mark)

.....

.....

……

(ii) Giving one example in each case, distinguish between ***thermosoftening plastics*** and ***thermosetting plastics*** ? (03 marks)

……

……

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……

……

……

(iv).Name **one** polymer which is not ***synthetic*** , and state one use of ***polymer*** Named.

- Name of polymer. (01 mark)

……

- Use of polymer (01 mark)

……

……

(d).State two differences between products made of ***glass*** and those made of ***metals***. Use a table. (02 marks)

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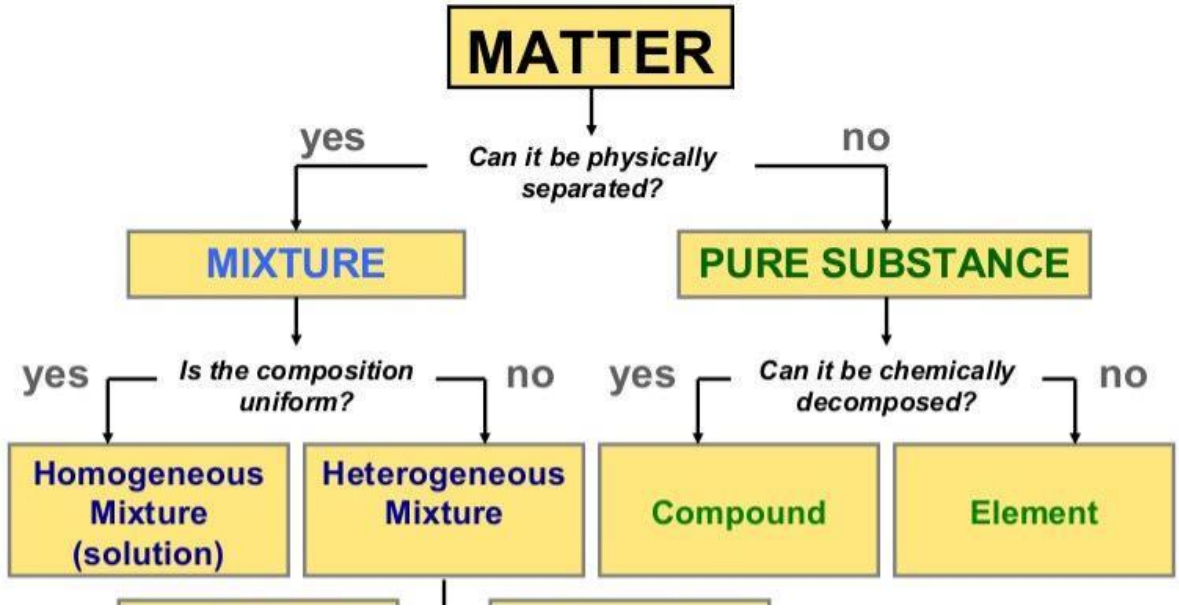
……

5. Below is flow chart which summarizes the classification of substances that make up matter. Read it and answer the questions that follow.



(a)**Classify** the substances given as ***element, compound*** or ***mixture.***

(i). Crude oil. (01 mark)

.....

(ii). Charcoal. (01 mark)

.....

(iii).Water. (01 mark)

.....

(b)State the difference in ***composition*** between a mixture of **water** with **cooking oil** and a mixture of a solution of **water** with **sugar** (01 mark)

.....

.....

.....

.....

.....

(c).A substance **Q** consists of **iron** and **sulphur** mixed together, when substance **Q** is heated, a new product **P** called **iron**(**II**) **sulphide** is formed.

(i).State what was observed when a bar magnet was passed separately Over,

- Substance **Q,** (01 mark)

.....

.....

- Substance **P.** (01 mark)

.....

.....

(ii)**Justify** your observations in (b) (i) (02 marks)

.....

.....

.....

(iii)State **two** differences between substances **Q** and substance **P**.

(02 marks)

.....

.....

.....

.....

(d)As a **S.2** student; state **two** experiments that can be carried out to tell that a substance is **pure.** (02 marks)

.....

.....

(e).Draw a well labelled diagram to show a mixture of water and cooking oi l can be separated in the laboratory. (03 marks)

END.

@Hasems sem.R.