

AHMES SECONDARY SCHOOL

FORM ONE HOLIDAY PACKAGE DECEMBER 2021

CHEMISTRY

1(a) What are considered to be the main distinctions between a chemical compound and a mixture? Explain why the liquid obtained by mixing sodium chloride with water is not regarded as a chemical compound

(b) Illustrate three differences between metallic and non-metallic elements by reference to the properties of iron and Sulphur.

2(a) What is the essential difference between a chemical and a physical change?

(b) Indicate clearly the chemical and physical changes involved in the following processes, give full reasons in each case

(i) The addition of metallic sodium to water

(ii) The solution of sodium chloride in water

(iii) The heating of magnesium in air

(iv) The heating of ammonium chloride

(v) The addition of water to concentrated sulphuric acid

3(a) Describe briefly how you would separate a pure sample of the first named substance from the impurity in each of the following mixtures

(i) Iron turnings contaminated with oil

(ii) Sodium chloride crystals contaminated with glass

(iii) Hydrogen sulphide contaminated with hydrogen chloride

(iv) Water contaminated with copper (II) sulphate

(v) Copper powder contaminated with magnesium powder

(b) State kinetic theory of matter

4(a) Complete the following table by filling the correct information for combustion of non-metals in oxygen

Element	How it burns	Oxide formed	Colour of gas formed	Effect on blue litmus paper
	With a blue flame	Sulfur(IV)Oxide	White fumes	
Carbon				Turns red
Red phosphorus	With a white flame		White fumes	

(b) Explain the large scale production of oxygen in industry by using fractional distillation of liquefied air

5(a) Describe the usual preparation and collection of oxygen in the laboratory. State how oxygen can be used to prepare

- (i) An acidic oxide
- (ii) An alkaline oxide
- (iii) An insoluble basic oxide

(b) What would you observe if?

- (i) A solution of hydrogen peroxide was added to manganese (IV) Oxide?
- (ii) An excess hydrogen peroxide solution was added to a solution of potassium manganite (VII) acidified with dilute sulfuric acid

6(a) Write down the chemical test of

- (i) Hydrogen (ii) Oxygen (iii) Water
- (b) Write down four chemical properties of hydrogen

7(a) Name two reagents normally used in the laboratory preparation of hydrogen from a metal and an acid. Write a word equation for the reaction

(b) Draw a well labelled diagram to illustrate the usual laboratory preparation and collection of hydrogen by the action of a named metal on a named acid

8(a) (i) Why do you think laboratory doors should open outward?

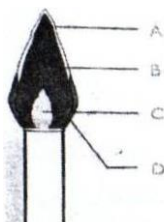
(ii) Give reasons as to why most of apparatus are made glass?

(iii) It is important for laboratory to have a fume chamber?

(b) Give reasons to explain the following statements

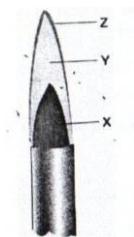
- i. During heating chemicals, one should wear eye goggles
- ii. Never leave unattended flame in the laboratory
- iii. First aid should be rendered to a person who has swallowed poisonous chemicals
- iv. Laboratory should have large windows.

9(a) . Identify the parts labeled A-D



(i) What are the differences between luminous and non-luminous flame?

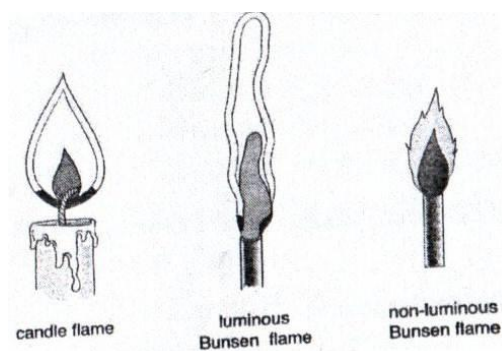
(b) Look at the Bunsen burner flame.



- i. Is this luminous or non-luminous flame ?
- ii. How do you adjust the Bunsen burner to produce this type of flame?
- iii. Which letter XY or Z shows:
 - a) The region of unburnt gases
 - b) Hottest part of flame
 - c) The region where all the gas is burnt with air mainly supplied from outside the chimney?

10. Copy the diagrams in the figure below

a) Complete the labeling of the diagrams



- b) Which two flames seem to be similar?
- c) By excluding a Bunsen burner, mention other three sources of heat that can be used in the laboratory
- d) Why is a Bunsen burner the best heat source in the laboratory? Give three points.

11 Explain any four significances of scientific procedures