AGA KHAN UNIVERSITY EXAMINATION BOARD

SECONDARY SCHOOL CERTIFICATE

CLASS IX EXAMINATION

APRIL/ MAY 2017

Chemistry Paper II

Time: 2 hours 25 minutes Marks: 40

AKU May Examination 2017

INSTRUCTIONS

Please read the following instructions carefully.

1. Check your name and school information. Sign if it is accurate.

I agree that this is my name and school. **Candidate's signature**

2. RUBRIC. There are EIGHT questions. Answer ALL questions. Questions 7 & 8 each offer TWO choices. Attempt any ONE choice from each.

3. When answering the questions:

   Read each question carefully.
   Use a black pointer to write your answers. DO NOT write your answers in pencil.
   Use a black pencil for diagrams. DO NOT use coloured pencils.
   DO NOT use staples, paper clips, glue, correcting fluid or ink erasers.
   Complete your answer in the allocated space only. DO NOT write outside the answer box.

4. The marks for the questions are shown in brackets ( ).

5. You may use a simple calculator if you wish.

Q.1. (Total 3 Marks)

Given below is a chemical equation showing the reaction between magnesium ribbon and oxygen gas.

$$Mg_{(s)} + O_{2(g)} \rightarrow \mathbf{X}$$

a. Identify the product **X** and balance the given chemical equation. (2 Marks)

_____

_____

_____

_____

b. Name the type of chemical reaction taking place in this equation. (1 Mark)

_____

_____

AKU-EB May Examination 2017

Q.2. (Total 4 Marks)

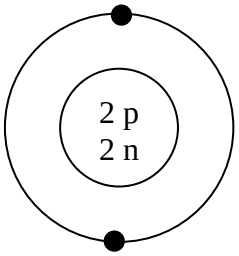
Complete the table for the given substances.

Substance	Dot and Cross Diagram
Oxygen gas	
Nitrogen gas	
Methane gas	
Carbon dioxide gas	

AKU-EB May Examination 2017

Q.3. (Total 5 Marks)

Consider the given structure of an atom of an element **X** to answer the following questions.



a. Identify the element **X**. (1 Mark)

_____

_____

b. Name another element belonging to the same group as element **X**. (1 Mark)

_____

_____

c. State any THREE properties that all the elements of this group have in common. (3 Marks)

_____

_____

_____

_____

_____

_____

AKU-EB May Examination 2017

Q.4. (Total 5 Marks)

a.

i. State the relationship between volume and temperature of a gas presented by J. Charles. (1 Mark)

ii. Give mathematical representation of Charles's law to support your answer in part **i**. (1 Mark)

b. A doctor prescribed milk of magnesia, a suspension of magnesium hydroxide, to a patient in order to be used as a neutraliser for stomach acidity.

How would you determine that milk of magnesia is a suspension? Give THREE reasons. (3 Marks)

AKU-EB May Examination 2017

Q.5. (Total 4 Marks)

a. 150 cm^3 of an aqueous sodium chloride solution contains 3 g sodium chloride. Calculate the mass/volume percentage of the given solution. (2 Marks)

b. If 15 cm^3 of 5 M hydrochloric acid solution has been diluted to 100 cm^3, then what will be the molarity of the prepared solution? (2 Marks)

Q.6. (Total 4 Marks)

An element **X** has relative atomic number of 11. It loses one electron and acquires +1 oxidation state. It gives a violent reaction with cold water.

a. Identify element **X** based on the given characteristics. (1 Mark)

b. Which period of the periodic table does element **X** belong to? (1 Mark)

c. What products are formed on reaction of element **X** with cold water? (2 Marks)

AKU-EB May Examination 2017

Q.7. (Total 8 Marks)

EITHER

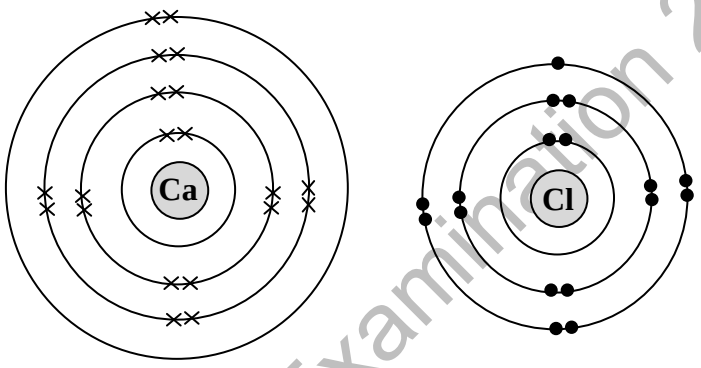
a.

i. Mention any FOUR medical uses of isotopes of any element. (4 Marks)

ii. Draw the atomic structures of three isotopes of oxygen, specifying their number of protons, neutrons and electrons. (4 Marks)

OR

b. Given are the atomic structures of calcium and chlorine. These two elements form a compound called calcium chloride.



i. Name the bond that joins calcium and chlorine atoms together. (1 Mark)

ii. Explain the formation of bond between calcium and chlorine atoms. (6 Marks)

iii. Draw a dot and cross diagram to represent the bond in calcium chloride. (1 Mark)

AKU-EB May Examination 2017

Space for drawing

mination 2017

Q.8. (Total 7 Marks)

EITHER

a.

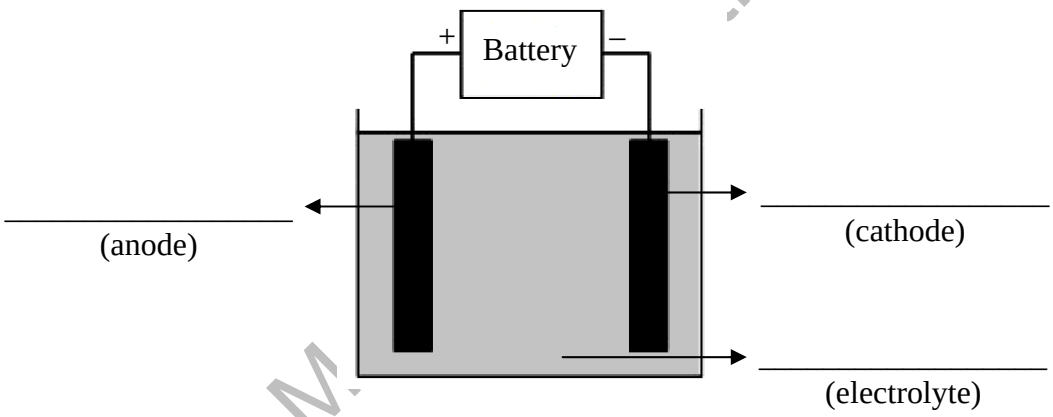
i. Define amorphous and crystalline solids. (2 Marks)

ii. Differentiate between gases and solids on the basis of the following properties. (5 Marks)

- Volume
- Compressibility
- Density
- Boiling point
- Ease of flow

OR

b. The given diagram shows an electrolytic cell that is used for refining of copper.



i. Name the anode, cathode and electrolyte used for the given electrolytic cell. (3 Marks)

ii. How is copper purified through the process of electrolytic refining? Support your answer using balanced chemical equation for the reactions occurring at the anode and the cathode. (4 Marks)

AKUEB M tion 2017

AKU-EB May Examination 2017

END OF PAPER

Please use this page for rough work

AKU-EB May Examination 2017

Please use this page for rough work

AKU-EB May Examination 2017