

AGA KHAN UNIVERSITY EXAMINATION BOARD

SECONDARY SCHOOL CERTIFICATE

CLASS X EXAMINATION

MAY 2012

Chemistry Paper II

Time allowed: 2 hours 25 minutes Marks 40

INSTRUCTIONS

Please read the following instructions carefully.

1. Check your name and school information. Sign that it is correct.

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

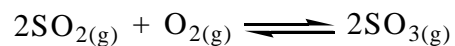
2. RUBRIC. There are SEVEN questions. Answer ALL SEVEN questions. Questions 5, 6 & 7 each offer TWO choices. Attempt any ONE choice from each.
3. When answering the questions:

Read each question carefully.
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 5 Marks)

- a. The equation below shows the formation of sulphur trioxide through a reversible and an exothermic reaction.



Write an equilibrium constant expression for the given reaction.

(2 Marks)

Space for Equilibrium Constant Expression

- b. Write an equation to show the dissociation of water. Identify the nature of water that makes it undergo self ionization.

(3 Marks)

Space for Equation

Nature of water: _____

Q.2.

(Total 8 Marks)

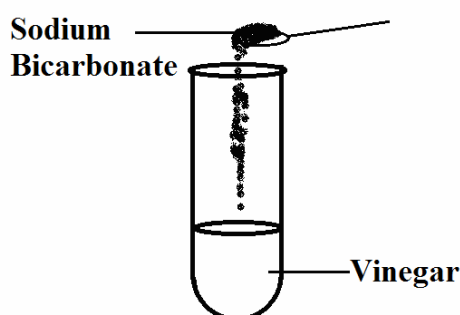
a. Carbon has the ability to form a variety of organic compounds.

Which TWO properties of carbon allow it to form different organic compounds? (2 Marks)

1. _____

2. _____

b. The diagram below shows sodium bicarbonate being added to vinegar present in a test tube.



i. Write a balanced chemical equation to show the reaction taking place inside the test tube. (2 Marks)

ii. Which functional group is identified by carrying out this particular test? Give a reason to support your answer. (2 Marks)

Functional group: _____

Reason: _____

c. Write a balanced chemical equation for the reaction of methane with steam. Also mention the conditions required for the reaction. (2 Marks)

PLEASE TURN OVER THE PAGE

Q.3. (Total 6 Marks)

a. Write any TWO differences between fats and oils. (2 Marks)

S. No.	Fats	Oils
1.		
2.		

b.
i. What is meant by the term 'fractional distillation'? (1 Mark)

ii. Describe the composition of natural gas. (3 Marks)

Q.4.

(Total 6 Marks)

- a. When fossil fuels burn, oxidation of sulphur takes place and sulphur dioxide is formed. Sulphur dioxide reacts with rain in air and falls to earth as acid rain.

Describe any TWO damages that acid rain can cause. (2 Marks)

1. _____

2. _____

- b. Describe ONE effect of each of the following air pollutants on human health. (3 Marks)

Air Pollutants	Effects
Carbon monoxide	
Sulphur dioxide	
Ozone	

- c. Give a reason why hard water uses up more detergent in the washing processes. (1 Mark)

PLEASE TURN OVER THE PAGE

Q.7.

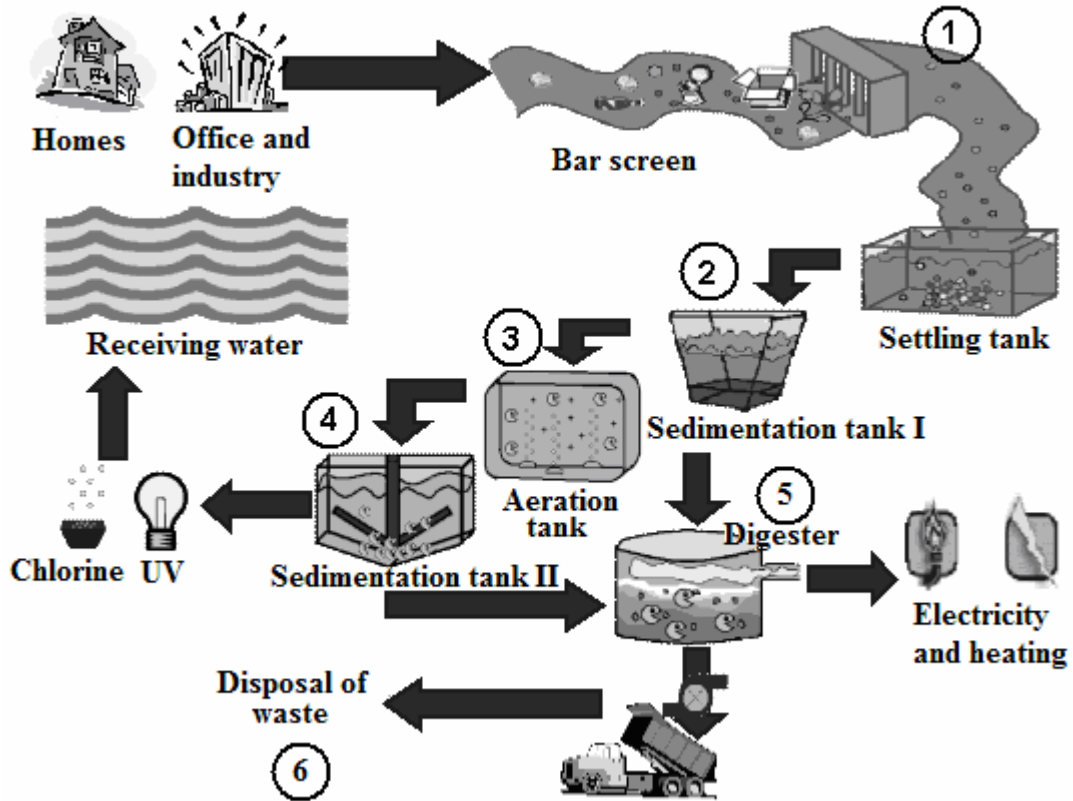
(Total 5 Marks)

EITHER

- a. Define incineration of waste material. How does it contribute to air pollution? Give FOUR harmful effects to support your answer.

OR

- b. The figure below shows the treatment of waste water at sewage works.



Describe what happens in stages 3 (aeration tank), 4 (sedimentation tank II), 5 (digester) and 6 (disposal of waste).

Please use this page for rough work

Please use this page for rough work

Please use this page for rough work