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.

Page	e 2 of 12	
Q.1		Total 5 Marks)
a.	The equation below shows the formation of sulphur trioxide through a reversible an exothermic reaction.	d an
	$2SO_{2(g)} + O_{2(g)} \longrightarrow 2SO_{3(g)}$	
	Write an equilibrium constant expression for the given reaction.	(2 Marks)
	Space for Equilibrium Constant Expression	
1.	White an arration to the discount of section I landified by action of section the	4
b.	Write an equation to show the dissociation of water. Identify the nature of water that undergo self ionization.	(3 Marks)
	Space for Equation	
	Nature of water:	

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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.
	Sodium Bicarbonate Vinegar 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 support your answer. Functional group: Reason: 	(2 Marks)
c.	Write a balanced chemical equation for the reaction of methane with steam. Also reconditions required for the reaction.	nention the (2 Marks)

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Q.3.			(Total 6 N	Marks)
a.	Write any TWO differences between fats and oils.		(2 N	Marks)
	S. No.	Fats	Oils	
	1.			
	2.			
b.				
	i. What	t is meant by the term 'fractional distilla	ation'? (1	Mark)
	ii. Desc	ribe the composition of natural gas.	(3 N	Marks)
	·			
	·			

Q .4			Total 6 Marks)
ι.		n, oxidation of sulphur takes place and sulphur dioxide is form in in air and falls to earth as acid rain.	ed. Sulphur
	Describe any TWO da	amages that acid rain can cause.	(2 Marks)
l			
2			
).		of each of the following air pollutants on human health.	(3 Marks)
).	Describe ONE effect of Air Pollutants	of each of the following air pollutants on human health. Effects	(3 Marks)
).			(3 Marks)
).	Air Pollutants		(3 Marks)
).	Air Pollutants		(3 Marks)
).	Air Pollutants Carbon monoxide		(3 Marks)
).	Air Pollutants Carbon monoxide Sulphur dioxide		(3 Marks)
).	Air Pollutants Carbon monoxide		(3 Marks)
	Air Pollutants Carbon monoxide Sulphur dioxide Ozone	Effects	
). ;;.	Air Pollutants Carbon monoxide Sulphur dioxide Ozone		(3 Marks)
	Air Pollutants Carbon monoxide Sulphur dioxide Ozone	Effects	

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Q.5	EITHER	(Total 5 Marks)
a.	What is the effect of catalyst and temperature on an equilibrium reaction? Also we reactions for any ONE of the following situations using a balanced chemical equations.	
	i. Hydrogen iodide gas (HI) decomposes into its elements.ii. Hydrogen and nitrogen gases combine to form ammonia gas.	
	OR	
b.	Classify trimethylamine $(N(CH_3)_3)$ and boron trifluoride (BF_3) as an acid or a bas classification and also write an equation showing the combination of the two.	e. Justify your
		
		

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Q.6	. (Total 5 Marks) EITHER	
a.	Describe how vegetable oil is converted into margarine. Also write a test with bromine water. Give chemical equation(s) where required.	
	OR	
b.	Illustrate the process of industrial preparation of sodium carbonate with the help of a flow chart. Write chemical equation(s) where required.	
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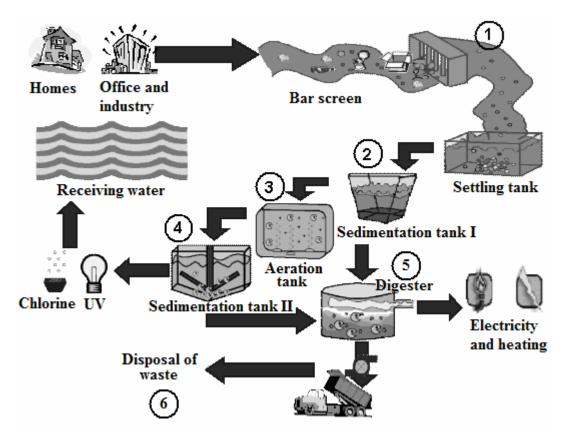
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Q.7. (Total 5 Marks) **EITHER**

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).

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END OF PAPER	

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