

AGA KHAN UNIVERSITY EXAMINATION BOARD
HIGHER SECONDARY SCHOOL CERTIFICATE
CLASS XII
MODEL EXAMINATION PAPER 2023 AND ONWARDS
Chemistry Paper II

Time: 1 hour 30 minutes Marks: 35

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

RUBRIC

2. 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:

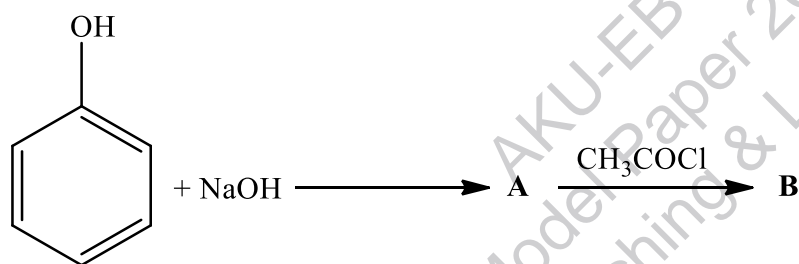
Read each question carefully.
Use a black pointer to write your answers. DO NOT write your answers in pencil.
Use a black pencil for diagrams. DO NOT use coloured pencils.
DO NOT use staples, paper clips, glue correcting fluid, or ink erasers.
Complete your answer in the allocated space only. DO NOT write outside the answer box.
4. The marks for the questions are shown in brackets ().
5. You may use a scientific calculator if you wish.

Q.1. (Total 3 Marks)

Describe the process of destructive distillation of coal and name any TWO products obtained through this process.

Q.2. (Total 4 Marks)

a. Draw the structures of **A** and **B** to complete the given reaction of phenol. (2 Marks)



Space for drawing

- b. Why is iodoform test used to differentiate between methanol and ethanol? Give a reason with reference to the structures of methanol and ethanol. (2 Marks)

Q.3. (Total 4 Marks)

Draw the structural formulae of the following compounds.

Compound	Structural Formula
Propanone phenylhydrazone	
4-hydroxybenzaldehyde	
Ethanaloxime	
3-Methyl-2-butanone	

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Q.4. (Total 3 Marks)

State any THREE factors that can affect the rate of enzyme action.

Q.5. (Total 3 Marks)

Write any THREE uses of dyes in cosmetic industry.

Q.6. (Total 4 Marks)

a. Infrared spectroscopy is used to identify the structures of molecules.

Mention any TWO specific types of information that it provides. (2 Marks)

i.

ii.

b. State ONE use and ONE drawback of combustion analysis. (2 Marks)

Q.7.

(Total 7 Marks)

EITHER

- a. Explain the resonance in benzene with the help of Kekule and Dewar structures. (7 Marks)

OR

b.

- i. Explain any ONE environmental problem caused by the emission of each of the following oxides. (5 Marks)

I. Oxides of sulphur

II. Oxides of carbon

(Note: Write chemical equations where necessary to support your answer.)

- ii. Write any TWO negative impacts on the environment of any one of the problems described in part i. (2 Marks)

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Q.8.

(Total 7 Marks)

EITHER

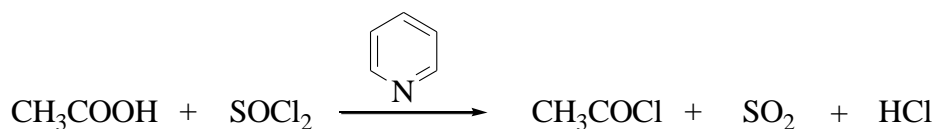
a.

- i. Why are Grignard reagents more reactive as compared to most of the other organic compounds? (1 Mark)
- ii. Show the preparation of isopropyl magnesium bromide (Grignard's reagent) from an alkyl halide. Your answer should include the following: (3 Marks)
 - Chemical equation of the reaction.
 - Necessary condition(s) required for the preparation.
- iii. Write a chemical equation to show the reaction of isopropyl magnesium bromide with the following compounds. (3 Marks)
 - I. Carbon dioxide
 - II. Propanone
 - III. Ethanal

OR

b.

- i. Show the preparation of carboxylic acid by the hydrolysis of alkyl nitriles and by Grignard's reagent using chemical equations. Mention necessary conditions for each reaction. (4 Marks)
- ii. Write the mechanism for the given reaction of carboxylic acid with SOCl_2 to form corresponding acetyl chloride. (3 Marks)



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