ICSE CLASS 10 EXAMINATION

PRACTICE QUESTION PAPER

CHEMISTRY (SCIENCE PAPER – 2)

Chapter 12: Organic Chemistry

Maximum Marks: 40 ***Time allowed: One hour***

1. Answers to this Paper must be written on the paper provided separately.
*2. You will not be allowed to write during the first **10** minutes. This time is to be spent in reading the question paper.*
*3. **The time given at the head of this Paper is the time allowed for writing the answers.***
*4. **Section A** is compulsory. Attempt **any two** questions from **Section B**.*
5. The intended marks for questions or parts of questions are given in brackets [ ].

SECTION A (20 Marks)

*(Attempt **all** questions from this Section.)*

Question 1

Choose the correct answers to the questions from the given options. [8]
(Do not copy the question, write the correct answers only.)

(i) The general formula of the alkene series is:

(a) C_nH_{2n+2}
(b) C_nH_{2n}
(c) C_nH_{2n-2}
(d) C_nH_{2n+1}

(ii) The IUPAC name of $CH_3–CH(CH_3)–CH_3$ is:

(a) Butane
(b) 2-methylpropane
(c) Propane
(d) 2-methylbutane

(iii) The gas obtained on heating sodium ethanoate with soda lime is:

(a) Ethane
(b) Ethene
(c) Methane
(d) Carbon dioxide

(iv) Which of the following is an **addition** reaction?

(a) $CH_4 + Cl_2 \rightarrow CH_3Cl + HCl$
(b) $C_2H_4 + Br_2 \rightarrow C_2H_4Br_2$
(c) $C_2H_6 + Cl_2 \rightarrow C_2H_5Cl + HCl$
(d) $2C_2H_6 + 7O_2 \rightarrow 4CO_2 + 6H_2O$

(v) Ethyne is prepared in the laboratory by the action of water on:

(a) Aluminium carbide

(b) Calcium carbide

(c) Sodium ethanoate

(d) Ethyl bromide

(vi) **Assertion (A):** Ethene is more reactive than ethane.
Reason (R): Ethene contains a carbon–carbon double bond, which breaks easily to give addition products.

(a) (A) is true but (R) is false.

(b) (A) is false but (R) is true.

(c) Both (A) and (R) are true, and (R) is the correct explanation of (A).

(d) Both (A) and (R) are true, but (R) is not the correct explanation of (A).

(vii) The functional group present in an aldehyde is:

(a) –OH

(b) –COOH

(c) –CHO

(d) >C=O

(viii) Pure ethanoic acid is called glacial acetic acid because it:

(a) Is a gas at room temperature

(b) Freezes to ice-like crystals on cooling (m.p. 17 °C)

(c) Is very soluble in water

(d) Has no smell

Question 2

(i) Complete the following sentences by choosing the correct option from the brackets: [3]

(a) Alkanes mainly undergo _____ reactions. (substitution / addition)

(b) Ethanol on oxidation with acidified potassium dichromate first gives ethanal and then _____. (ethanoic acid / ethene)

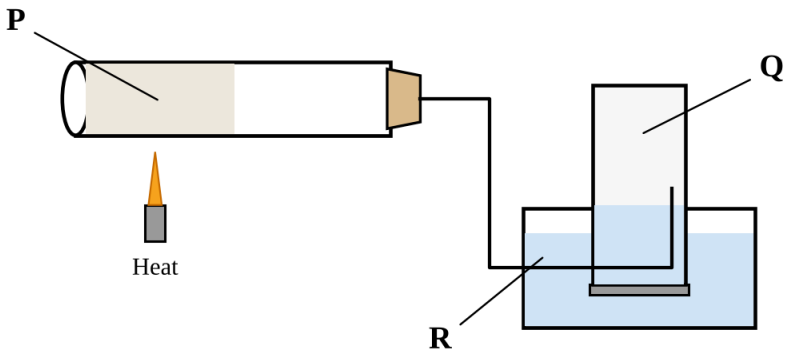
(c) Ethane and ethene are examples of _____ hydrocarbons respectively. (saturated, unsaturated / unsaturated, saturated)

(ii) Match Column A with Column B. (Write the answers as (a)–(number), and so on.) [3]

Column A	**Column B**
(a) C_2H_5OH	1. Ethyne
(b) CH_3COOH	2. Ethanol
(c) CH ≡ CH	3. Ethanoic acid
	4. Ethanal

Question 3

(i) The diagram below shows the laboratory preparation of methane. [3]



(a) Name the mixture P and write the equation for the reaction.

(b) Name the method of collection of the gas Q. Give a reason for using this method.

(c) What is soda lime? State why it is used instead of sodium hydroxide alone.

(ii) Give reasons for the following: [3]

(a) The number of organic compounds is very large.

(b) Ethyne burns with a sooty flame.

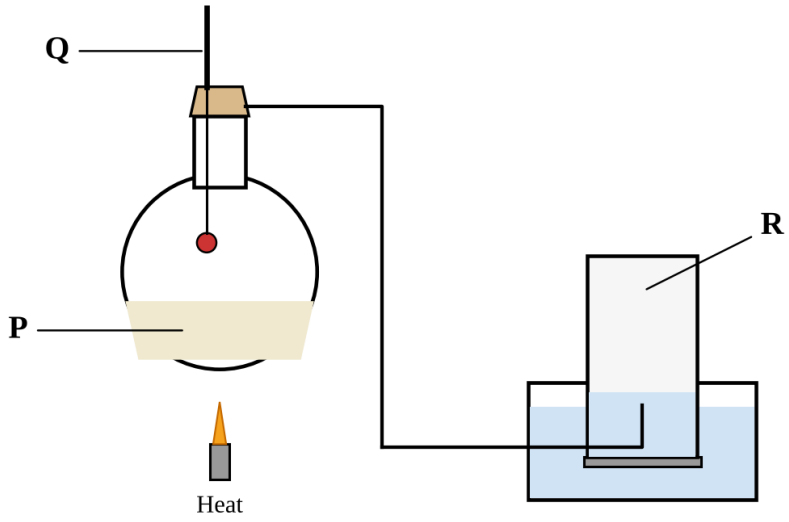
(c) Ethyne is more reactive than ethane.

SECTION B (20 Marks)

*(Attempt **any two** questions from this Section.)*

Question 4

The diagram below shows the laboratory preparation of ethene.



(i) Answer the following questions based on the diagram: [4]

(a) Name the mixture P and write the equation for the reaction. State the temperature shown by the thermometer Q.

(b) What is the function of concentrated sulphuric acid in this reaction?

(c) Name the method used to collect the gas R. Give a reason.

(d) Name a reagent which can be used to identify the gas and state what is observed.

(ii) Write balanced equations for the reaction of ethene with: [3]

(a) bromine.

(b) hydrogen in the presence of nickel.

(c) oxygen (complete combustion).

(iii) Ethene can also be prepared from bromoethane. [3]

(a) Name the reagent and write the equation for the reaction.

(b) Name the type of reaction.

(c) Name the polymer formed when ethene molecules combine.

Question 5

The table below gives information about three homologous series of hydrocarbons.

	Series I	**Series II**	**Series III**
General formula	C_nH_{2n+2}	C_nH_{2n}	C_nH_{2n-2}
IUPAC name of the series	Alkanes	(a)	Alkynes
Type of carbon–carbon bond	Single bond	Double bond	(b) .....
First member of the series	Methane	(c)	Ethyne
Type of reaction with chlorine	(d)	Addition	Addition

(i) Complete the table by writing the answers (a), (b), (c) and (d): [4]

(ii) Butane, C_4H_{10}, shows isomerism. [3]

(a) Draw the structural formula of n-butane.

(b) Draw the structural formula of its isomer and write its IUPAC name.

(c) Name the type of isomerism shown.

(iii) Methane is the first member of the alkane series. [3]

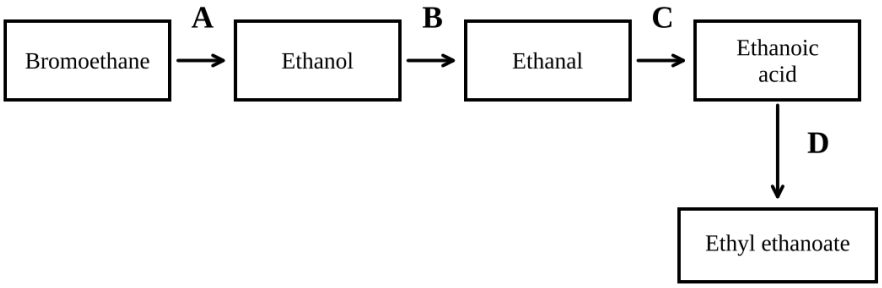
(a) Write the equation for the complete combustion of methane.

(b) Write the equation for the first step of the reaction of methane with chlorine in sunlight. Name the type of reaction.

(c) Write the equation for the preparation of methane from aluminium carbide.

Question 6

The flow chart below shows the conversion of bromoethane into ethyl ethanoate.



(i) Answer the following questions based on the flow chart: [4]

(a) Name the reagent used in step A.

(b) Name the oxidising agent used in steps B and C.

(c) Name the process in step D and name the other reagent used with the catalyst.

(d) Write the equation for step D.

(ii) Ethanoic acid is a weak acid. Write balanced equations for its reaction with: [3]

(a) sodium carbonate.

(b) magnesium.

(c) ethanol, in the presence of concentrated sulphuric acid.

(iii) Answer the following questions on ethanol: [3]

(a) Write the equation for its reaction with sodium.

(b) Write the equation for its combustion in air.

(c) What is denatured alcohol?

****** END OF PAPER ******