



## INDIAN SCHOOL MUSCAT

## FIRST PERIODIC TEST

## CHEMISTRY

CLASS: XII

Sub. Code: 043

Time Allotted: 50 mts.

18.04.2022

Max. Marks: 20

## GENERAL INSTRUCTIONS:

- a. All questions are compulsory.  
b. Mark for each question is indicated against it

Following questions are multiple choice type carrying 1 mark each:

1. Ethyl benzene on free radical halogenation followed by treatment with Na in dry ether gives 1  
a) 1,2-diphenylbutane  
b) 1,4-diphenylbutane  
c) 2,3-diphenylbutane  
d) 1,3-diphenylbutane
2. Which one of the following compounds is the most reactive in  $S_N1$  reaction? 1  
a)  $C_6H_5C(CH_3)C_6H_5Br$   
b)  $C_6H_5CH_2Br$   
c)  $C_6H_5CH(C_6H_5)Br$   
d)  $C_6H_5CH(CH_3)Br$
3. The chiral compound is : 1  
a) 3-chloropentane    b) Propene    c) 2-chloropropane    d) 2-chlorobutane

In the following questions, a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

- A. Assertion and reason both are correct statements and reason is correct explanation for assertion.  
B. Assertion and reason both are correct statements but reason is not correct explanation for assertion.  
C. Assertion is correct statement but reason is wrong statement.  
D. Assertion is wrong statement but reason is correct statement

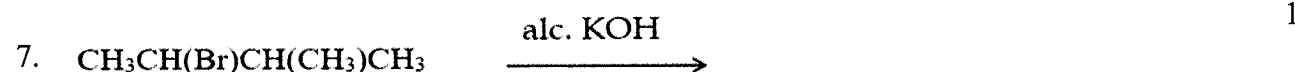
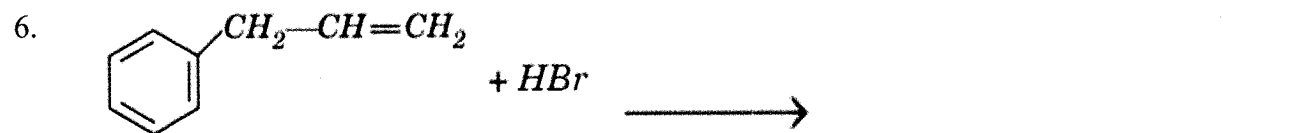
4. Assertion:  $S_N2$  reaction is a bimolecular reaction 1

Reason: Both alkyl halide and nucleophiles determine the rate of reaction.

5. Assertion: Boiling points of alkyl halides decrease in the order  $R-I > R-Br > R-Cl > R-F$ . 1

Reason: Van der Waals forces decrease with increase in the size of halogen atom.

**Predict the major product in the following**



**Answer the following**

8. Write the IUPAC name of  $CH_3CH=C(Cl)CH_2CH(CH_3)_2$  1

9. Draw the structure of 4-sec-Butyl-1-chloro-2-methylbenzene. 1

10. Convert But-1-ene to 1-fluorobutane. 1

11. Give a chemical tests to distinguish the following compounds: 1

Chlorobenzene & Ethyl chloride.

12. Write equations for the following 2

- a) Friedel Crafts Alkylation of Chlorobenzene
- b) Finkelstein reaction

13. Explain why 2

- a) Grignard reagent is prepared and stored in anhydrous conditions
- b) Primary benzylic and allylic halides follow  $S_N1$  mechanism

14. Explain the following 2

- a) Enantiomers
- b) Retention of configuration

15. An optically active compound having molecular formula  $C_7H_{15}Br$  reacts with aq. NaOH to give a racemic mixture of products. Write the mechanism involved for the reaction. 3

**End of the Question Paper**



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**Following questions are multiple choice type carrying 1 mark each:**

1. Which of the following compound is chiral? 1  
a) Butan-2-ol b) 1-Bromobutane c) 2-Bromopropane d) 2-Bromopropan-2-ol
2. The major product formed when but-1-ene is treated with chlorine in the presence of UV light is 1  
a) 4-Chlorobut-1-ene  
b) 3-Chlorobut-1-ene  
c) 1-Chlorobut-1-ene  
d) 1,2-dichlorobutane
3. Which one of the following is the most reactive by  $S_N2$  mechanism? 1  
a)  $CH_3-Br$   
b)  $CH_2=CH-CH_2-Br$   
c)  $C_6H_5-CH_2-Br$   
d)  $(CH_3)_3C-Br$

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D. Assertion is wrong statement but reason is correct statement
4. Assertion :  $S_N2$  reaction of an optically active aryl halide with an aqueous solution of KOH 1

always gives an alcohol with opposite sign of rotation.

Reason :  $S_N2$  reactions always proceed with inversion of configuration

5. Assertion: Aryl iodides can be prepared by reaction of arenes with iodine in the presence of an oxidising agent. 1

Reason: Oxidising agent oxidises  $I_2$  into  $HI$ .

**Predict the major product:**



**Answer the following**

8. Write the IUPAC name of  $(CH_3)_3CCH=CClC_6H_5$  1
9. Draw the structure of neopentyl iodide 1
10. Convert Ethanol to nitroethane. 1
11. Give the chemical tests to distinguish the following compounds: 1
- 3-Chloropropene and 1-chloropropene
12. Write equations for the following 2
- a) Swarts reaction                      b) Wurtz reaction
13. Explain why 2
- a) Haloarenes are less reactive towards nucleophilic substitution reaction.
- b) Thionyl chloride is best reagent for converting alcohols to haloalkanes
14. Explain the following 2
- a) Inversion of configuration              b) Zaitsev rule
15. An optically active compound having molecular formula  $C_4H_9Br$  reacts with aqueous  $KOH$  to give a racemic mixture of products. Identify the compound and write the mechanism involved for the reaction. 3

**End of the Question Paper**



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Following questions are multiple choice type carrying 1 mark each:

1. An alkyl halide forms Grignard reagent on treating with magnesium metal in dry ether solvent and the Grignard reagent on hydrolysis yields propane. What is the original alkyl halide? 1
  - a) Methyl iodide
  - b) Ethyl iodide
  - c) Ethyl bromide
  - d) Propyl bromide
2. The correct order of reactivity of the halides, 1  
Ethyl chloride (I), Iso-propyl chloride (II), and benzyl chloride (III) in  $S_N1$  reaction is  
a)  $I > II > III$       b)  $III > II > I$       c)  $II > I > III$       d)  $I > III > II$
3. Which of the following is a chiral compound? 1
  - a) Dichloromethane
  - b) 1-Chlorobutane
  - c) Propan-2-ol
  - d) 2,3,4-trimethylhexane

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4. Assertion: AgCN forms isocyanide when react with haloalkanes while KCN form alkyl cyanides. 1

Reason: KCN is ionic while AgCN is covalent in nature thus providing different products.

5. Assertion: Presence of a nitro group at ortho or para position increases the reactivity of haloarenes towards nucleophilic substitution. 1

Reason: Nitro group, being an electron withdrawing group increases the stability of the intermediate.

**Predict the major product.**

6.  + HI → 1

7.  $\text{CH}_3 - \text{CHBr} - \text{CH}_2 - \text{CH}_3 + \text{alc. KOH} \rightarrow$  1

**Answer the following**

8. Write the IUPAC name of  $(\text{CH}_3)_3\text{CCBr}=\text{CHC}_6\text{H}_5$  1
9. Draw the structure of isopentyl bromide 1
10. Convert Propanol to 1-iodopropane. 1
11. Give a chemical tests to distinguish the following compounds: 1
- Benzyl chloride & Chloroethene
12. Write equations for the following 2
- a) Wurtz –Fittig reaction      b) Sandmeyer's reaction
13. Explain why 2
- a) Chlorine is ortho-para directing but deactivating towards electrophilic substitution.
- b) Para isomer of dihalobenzenes has high melting point as compared to ortho and meta isomers.
14. Explain the following: 2
- a) Racemisation      b) Ambident nucleophile
15. An optically active compound having molecular formula  $\text{C}_4\text{H}_9\text{Br}$  undergoes inversion of configuration when reacts with aqueous KOH. Identify the compound and write the mechanism involved for the reaction. 3

*End of the Question Paper*