



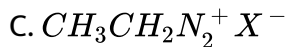
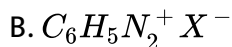
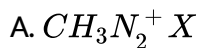
## CHEMISTRY

### BOOKS - ARIHANT PUBLICATION

### ARYL DIAZONIUM SALTS

#### Questions For Practice Multiple Choice Type Questions 1 Mark

1. Which of the following will be most stable diazonium salt  $RN_2^+ X^-$  ?



Answer: b



Watch Video Solution

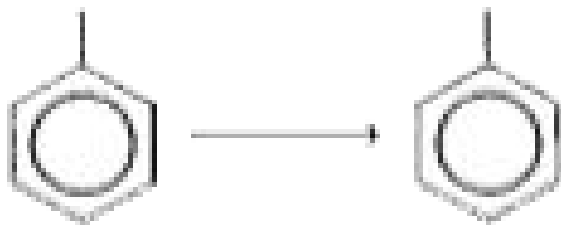
2. Aniline on treatment with sodium nitrite and HCl at 0°C produces which of the following compound?

- A. Diazonium salt
- B. Hydroazo compound
- C. Phenol and  $N_2$
- D. Nitroaniline

**Answer: a**

 Watch Video Solution

3. Consider the following reaction,



The above

reaction is called

- A. Carbylamine reaction
- B. Gattermann synthesis
- C. Sandmeyer's reaction
- D. Balz-Schiemann reaction

Answer: b

 [View Text Solution](#)

4. Identify the product in the following reaction



A. 3, 4, 5-tribromobenzene

B. 1, 2, 3-tribromobenzene

C. 2, 4, 6-tribromobenzene

D. 3, 4, 5-tribromonitrobenzene

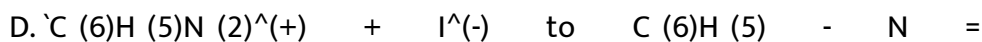
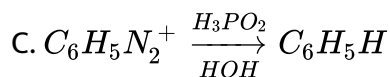
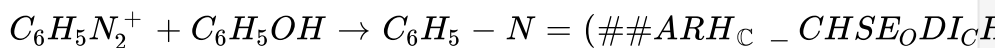
Answer: b

 Watch Video Solution

5. Which of the following reaction will not occur?



B.



(##ARH\_CC\_CHSE\_ODI\_CHE\_XII\_C22\_E01\_005\_004.png" width="30%>

**Answer: b**

 [View Text Solution](#)

## Questions For Practice Very Short Answer Type Questions 1 Mark

1. Write the structure of benzene diazonium chloride.

 [Watch Video Solution](#)

2. The conversion of primary aromatic amines into diazonium salts is known as

 [Watch Video Solution](#)

3. Diazonium salts of aromatic amines are more stable than those of aliphatic amines. Explain.

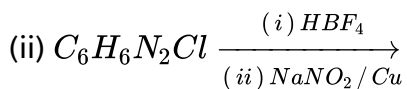
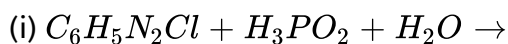
 [Watch Video Solution](#)

 Watch Video Solution

4. Why is benzene diazonium chloride not stored and used immediately after its preparation?

 Watch Video Solution

5. Complete the following reactions.

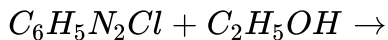


 Watch Video Solution

6. What is Sandmeyer's reaction ?

 Watch Video Solution

7. Complete the following reaction:

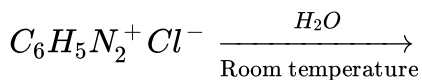


 [Watch Video Solution](#)

8. Benzene diazonium chloride reacts with potassium iodide to form\_\_\_\_\_

 [Watch Video Solution](#)

9. Complete the following reaction.



 [Watch Video Solution](#)

10. Write the chemical reaction occurring in the preparation of fluorobenzene from aniline.

 [Watch Video Solution](#)

11. What do you mean by coupling reaction?

 [Watch Video Solution](#)

12. Benzene diazonium chloride reacts with phenol in \_\_\_\_ medium to form an orange dye.

 [Watch Video Solution](#)

13. Which compound is formed when benzene diazonium chloride reacts with phenol in basic medium?

 [Watch Video Solution](#)

Questions For Practice Short Answer Type I Questions 2 Mark



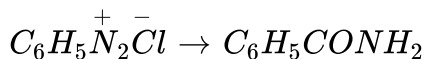
1. What is diazo reaction? Give equation.

 [Watch Video Solution](#)

2. How is phenol prepared from diazonium salt?

 [Watch Video Solution](#)

3. Suggest a route by which the following conversion can be accomplished.



 [Watch Video Solution](#)

4. Give a chemical test to distinguish between aniline and ethyl amine.

 [Watch Video Solution](#)

1. Accomplish the following conversions. (i) Benzene to m-bromophenol

 Watch Video Solution

2. Accomplish the following conversions.

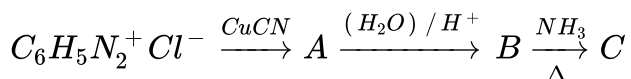
(i) Aniline to benzyl alcohol

 Watch Video Solution

3. What is coupling reaction? Give an example.

 Watch Video Solution

4. Give the structures of A, B and C in the following reactions.



 Watch Video Solution

 Watch Video Solution

5. Do the conversion : 3 – Methylaniline to – 3- Nitrotoluene .

 Watch Video Solution

### Questions For Practice Long Answer Type Questions 7 Marks

1. Give one methods of preparation of benzene diazonium chloride. Write its synthetic applications for preparation of (a) chlorobenzene (b) phenol (c) benzene (d) iodobenzene.

 Watch Video Solution

2. Starting from diazonium salt how can (i) benzene (ii) iodobenzene and (iii) benzoic acid be prepared?

 Watch Video Solution

3. How is benzene diazonium chloride prepared from aniline? How are the following compounds prepared from it?

(i) Benzene (ii) Phenol (iii) Iodobenzene (iv) Phenylcyanide.

 [Watch Video Solution](#)

4. What is Diazo reaction ? Write the structure of the product of this reaction. Using this reaction how the following compounds are prepared?

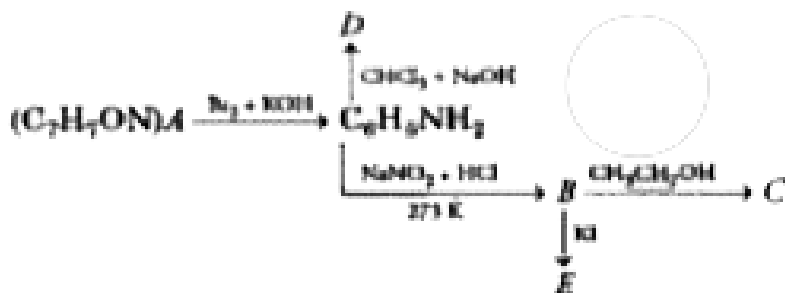
(i) Benzene (ii) Fluorobenzene

 [Watch Video Solution](#)

5. A hydrocarbon  $A(C_4H_8)$  on reaction with HCl gives a compound 'B' ( $C_4H_9Cl$ ) which on reaction with 1 mole of  $NH_3$  gives compound 'C' ( $C_4H_{11}N$ ). On reacting with  $NaNO_2$  and HCl followed by the treatment with water, compound 'C' yields an optically active alcohol, 'D'. Ozonolysis of 'A' gives 2 moles of acetaldehyde. Identify compounds 'A' to 'D'. Explain the reactions involved.

 Watch Video Solution

6. An aromatic compound 'A' of molecular formula  $C_7H_7ON$  undergoes a series of reactions as shown below. Write the structures of A, B, C, D and E in the following reactions.



 Watch Video Solution

## Odisha Bureau S Textbook Solutions Multiple Choice Type Questions

1. The diazonium salts are the reaction products of the reaction of nitrous acid with

- A. primary aliphatic amines
- B. primary aromatic amines
- C. secondary aliphatic amines
- D. secondary aromatic amines

Answer: B

 [Watch Video Solution](#)

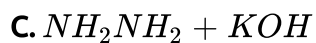
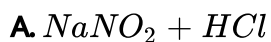
2. Preparation of a diazonium salt from a primary aromatic amine is known as

- A. coupling reaction
- B. Sandmeyer reaction
- C. diazotisation
- D. Corey-House synthesis

Answer: C

 [Watch Video Solution](#)

3. Which of the following reagents is used to prepare benzene diazonium chloride from aniline?



Answer: A

 [Watch Video Solution](#)

4. Which of the following are optimum temperature conditions for making benzene diazonium chloride from aniline?



**B.  $20^{\circ}C$  to  $25^{\circ}C$**

**C.  $30^{\circ}C$  to  $40^{\circ}C$**

**D.  $45^{\circ}C$  to  $50^{\circ}C$**

**Answer: A**



**Watch Video Solution**

**5. Benzene diazonium chloride reacts with warm water to give**

**A. aniline**

**B. phenol**

**C. benzene**

**D. chlorobenzene**

**Answer: B**



**Watch Video Solution**



6. Bromobenzene can be prepared by treating aniline with

A. conc.HBr

B.  $Br_2 / FeBr_3$

C. CuBr

D. nitrous acid then CuBr

Answer: D



Watch Video Solution

7. Chlorobenzene can be prepared by treatment of aniline with

A. cuprous chloride

B. chlorine in the presence of UV light

C. nitrous acid followed by treatment with CuCl

D. chlorine in the presence of  $FeCl_3$

Answer: C



Watch Video Solution

8. Iodobenzene can be prepared by

A. treating chlorobenzene with  $I_2$  using  $FeCl_3$  catalyst

B. treating phenol with  $I_2$  in NaOH solution

C. treating benzene diazonium chloride with KI

D. treating benzene with  $CH_3I$  using  $AlCl_3$  catalyst

Answer: C



Watch Video Solution

9. Benzene diazonium chloride reacts with KI to form

A. Benzene diazonium iodide

B. m-diiodobenzene

C. Iodobenzene

D. o-,m and p-diiodobenzene

Answer: C

 Watch Video Solution

10. What is the major product of the following reaction?



A. Benzonitrile

B. Benzoic acid

C. Nitrobenzene

**D. Benzene diazonium chloride**

**Answer: A**

 [Watch Video Solution](#)

**11. Benzene diazonium chloride reacts with hypophosphorus acid to form**

**A. phenol**

**B. benzaldehyde**

**C. aniline**

**D. benzene**

**Answer: D**

 [Watch Video Solution](#)

**12. Benzene diazonium chloride reacts with phenol to form**

A. chlorophenol

B. chlorobenzene

C. p-hydroxyazobenzene

D. DDT

Answer: C

 [Watch Video Solution](#)

## Odisha Bureau S Textbook Solutions Very Short Answer Type Questions

1. Write the structure of benzene diazonium chloride.

 [Watch Video Solution](#)

2. Why benzene diazonium salts are soluble in water?

 [Watch Video Solution](#)

3. What should be the nature of medium (neutral/acidic/basic) for diazotisation of arylamines.

 [Watch Video Solution](#)

4. Give only the equations for the synthesis of the following from benzene diazonium chloride.

(i) Chlorobenzene

(ii) Fluorobenzene

(iii) p-hydroxyazobenzene

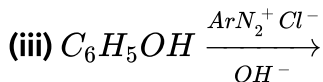
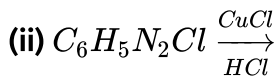
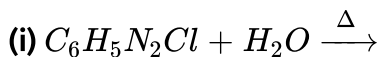
 [Watch Video Solution](#)

## Odisha Bureau S Textbook Solutions Short Answer Type I Questions

1. Suggest reason why excess mineral acid is used in diazo reaction.

 [Watch Video Solution](#)

2. Complete the following equations.



Watch Video Solution

3. Give the chemical equation for the following.

(i) Diazotisation reaction

(ii) Coupling reaction

(iii) Sandmeyer reaction



Watch Video Solution

4. How will you convert?

(i) Aniline to nitrobenzene.

(ii) Aniline to iodobenzene

 [Watch Video Solution](#)

5. How you will obtain p-hydroxyazobenzene from aniline?

 [Watch Video Solution](#)

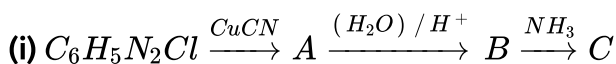
6. What is coupling reaction ? Give an example.

 [Watch Video Solution](#)

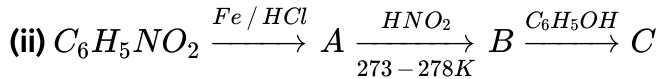
7. How will you carry out the conversion of aniline to m-bromonitrobenzene?

 [Watch Video Solution](#)

8. Give the structure of A, B and C in the following reactions.







 [Watch Video Solution](#)

## Odisha Bureau S Textbook Solutions Short Answer Type Ii Questions

1. Diazonium salts of aromatic amines are more stable than those of aliphatic amines. Explain.

 [Watch Video Solution](#)

## Odisha Bureau S Textbook Solutions Long Answer Type Questions

1. Discuss in detail the preparation of benzene diazonium chloride from aniline. Why it is not separated in solid state and used as soon as produces in solution? How can you convert benzene diazonium chloride to fluoro and iodobenzene.

 [Watch Video Solution](#)

**2. Describe the synthetic applications of aryl diazonium salts.**

 [Watch Video Solution](#)

**3. How will you obtain?**

**(i) Iodobenzene from nitrobenzene.**

 [Watch Video Solution](#)

**4. How will you synthesis the following?**

**(i) Azobenzene from benzene**

**(ii) Benzene from azobenzene**

**(iii) Azobenzene from nitrobenzene**

**(iv) Nitrobenzene from azobenzene**

 [Watch Video Solution](#)

5. Give the chemical equation for the following.

(i) Diazotisation reaction

(ii) Coupling reaction

(iii) Sandmeyer reaction



[Watch Video Solution](#)

6. Starting from diazonium salt how can (i) benzene (ii) iodobenzene and (iii) benzoic acid be prepared?



[Watch Video Solution](#)

### Chapter Practice Multiple Choice Type Questions 1 Mark

1. The diazonium salts have the general formula .....

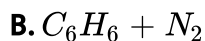
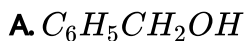
Select an appropriate statement in order to complete the above statement.

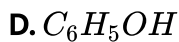
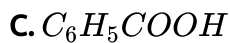
- A.  $RN_2^+ X^-$ , where, R stands for an aryl group and  $X^-$  ion may be  $Cl^-$ ,  $Br^-$ ,  $HSO_4^-$ ,  $BF_4^-$  etc.
- B.  $R_2N^+ X^-$  where, R stands for an aryl group and  $X^-$  ion may be  $Cl^-$ ,  $Br^-$ ,  $HSO_4^-$ ,  $BF_4^-$  etc.
- C.  $RN_2^+ X^-$ , where, R stands for an alkyl group and  $X^-$  ion may be  $Cl^-$ ,  $Br^-$ ,  $HSO_4^-$ ,  $BF_4^-$  etc.
- D. None of the above

Answer: A

 [Watch Video Solution](#)

2. When aqueous solution of benzene diazonium chloride is boiled, the product formed is:





**Answer: D**

 [Watch Video Solution](#)

3. Benzene diazonium chloride on reaction with phenol in weakly basic medium gives:

A. diphenyl ether

B. p-hydroxy azobenzene

C. chlorobenzene

D. benzene

**Answer: B**

 [Watch Video Solution](#)

1. A diazo group is.....

 [Watch Video Solution](#)

2. Why diazonium group get easily substituted by other groups?

 [Watch Video Solution](#)

3. Why are benzene diazonium salts more stable than alkyl diazonium salts?

 [Watch Video Solution](#)

1. Draw the resonating structures of benzene diazonium salt.

 [Watch Video Solution](#)

2. Usually, benzene diazonium salts are unstable but benzene diazonium fluoroborate is stable, why?

 [Watch Video Solution](#)

3. Aniline is diazotised in cold and then treated with dimethylaniline to give a coloured product. What is the structure of this product?

 [Watch Video Solution](#)

4. Starting from toluene, outline a synthesis of each of the following compounds using diazonium salts as intermediates.

(i) p-fluorotoluene

(ii) p-cresol

 [Watch Video Solution](#)

### Chapter Practice Short Answer Type II Questions 2 Mark

1. (i) What are coupling reactions? How does the electrophilic substitution reaction take place during this reaction?

(ii) List some important applications of diazonium salts.

 [Watch Video Solution](#)

### Chapter Practice Short Answer Type II Questions 3 Mark

1. Accomplish the following conversions:

(i) Benzene to m-bromophenol

(ii) Aniline to 2,4,6-tribromofluorobenzene.



 [Watch Video Solution](#)

## Chapter Practice Long Answer Type Questions 7 Marks

1. What is coupling reaction ? Give an example.

 [Watch Video Solution](#)

2. How benzene diazonium chloride is converted to (a) benzene (b) anisole (c) phenol ?

 [Watch Video Solution](#)