

Short Questions and Answers –

1. What are haloalkanes?

Haloalkanes are compounds in which halogen atoms are attached to sp^3 hybridised carbon atoms of alkyl groups.

2. What are haloarenes?

Haloarenes are compounds in which halogen atoms are attached directly to sp^2 hybridised carbon atoms of aromatic rings.

3. Which halogens are commonly present in halocompounds?

Fluorine, chlorine, bromine and iodine.

4. What is the general formula of haloalkanes?

$R-X$ where R is an alkyl group and X is a halogen atom.

5. Give one example of a haloalkane.

Chloroethane (C_2H_5Cl).

6. Give one example of a haloarene.

Chlorobenzene (C_6H_5Cl).

7. Why are halo compounds important?

They are used in medicines, solvents, anaesthetics and industrial chemicals.

8. Which halogen compound is used for the treatment of malaria?

Chloroquine.

9. Which halogen compound is used as an anaesthetic?

Halothane.

10. What is chloramphenicol?

It is a chlorine-containing antibiotic used for treating typhoid fever.

11. What is thyroxine?

Thyroxine is an iodine-containing hormone produced by the body.

12. What disease is caused by deficiency of thyroxine?

Goiter.

13. How are halocompounds classified on the basis of halogen atoms?

They are classified as mono, di and polyhalogen compounds.

14. What are monohalo compounds?

Compounds containing one halogen atom.

15. What are dihalo compounds?

Compounds containing two halogen atoms.

16. What are polyhalo compounds?

Compounds containing more than two halogen atoms.

17. What are allylic halides?

Compounds in which halogen is attached to a carbon atom adjacent to a double bond.

18. What are benzylic halides?

Compounds in which halogen is attached to a carbon atom adjacent to a benzene ring.

19. What are vinylic halides?

Compounds in which halogen is attached directly to a double bonded carbon atom.

20. What are aryl halides?

Compounds in which halogen is attached directly to an aromatic ring.

21. How are haloalkanes named in common nomenclature?

By naming the alkyl group followed by the halide name.

22. How are haloalkanes named in IUPAC system?

They are named as halosubstituted hydrocarbons.

23. What prefixes are used for halogens in IUPAC nomenclature?

Fluoro, chloro, bromo and iodo.

24. What are geminal dihalides?

Compounds in which both halogen atoms are attached to the same carbon atom.

25. What are vicinal dihalides?

Compounds in which halogen atoms are attached to adjacent carbon atoms.

26. What is another name for gem-dihalides in common system?

Alkylidene halides.

27. What is another name for vic-dihalides in common system?

Alkylene dihalides.

28. Which prefixes are used in common naming of dihalo benzene compounds?

Ortho (o-), meta (m-) and para (p-).

29. Which numbering system is used in IUPAC naming of dihalo benzene compounds?

1,2-, 1,3- and 1,4- numbering system.

30. What type of carbon-halogen bond is present in haloarenes?

sp^2 C—X bond.

Fill in the Blanks with Answers

1. The replacement of hydrogen atom(s) in hydrocarbons by halogen atom(s) forms _____ compounds.

Answer: halogen

2. Haloalkanes contain halogen atoms attached to _____ hybridised carbon atoms.

Answer: sp^3

3. Haloarenes contain halogen atoms attached to _____ hybridised carbon atoms.

Answer: sp^2

4. The general formula of haloalkanes is _____.

Answer: R—X

5. Chloramphenicol is used for the treatment of _____ fever.

Answer: typhoid

6. The iodine-containing hormone produced in the body is called _____.

Answer: thyroxine

7. Deficiency of thyroxine causes a disease called _____.

Answer: goiter

8. Chloroquine is used for the treatment of _____.

Answer: malaria

9. Halothane is used as an _____ during surgery.

Answer: anaesthetic

10. Compounds containing one halogen atom are called _____ compounds.

Answer: monohalo

11. Compounds containing two halogen atoms are called _____ compounds.

Answer: dihalo

12. Compounds containing more than two halogen atoms are called _____ compounds.

Answer: polyhalo

13. Alkyl halides contain _____ C—X bond.

Answer: sp^3

14. Haloarenes contain _____ C—X bond.

Answer: sp^2

15. Allylic halides contain halogen attached to a carbon atom adjacent to a _____ bond.

Answer: double

16. Benzylic halides contain halogen attached to a carbon atom adjacent to a _____ ring.

Answer: benzene

17. Halogen attached directly to a double bonded carbon forms _____ halides.

Answer: vinylic

18. Halogen attached directly to an aromatic ring forms _____ halides.

Answer: aryl

19. In common nomenclature, the alkyl group name is followed by the name of the _____.

Answer: halide

20. In IUPAC nomenclature, haloalkanes are named as _____ substituted hydrocarbons.

Answer: halo

21. The prefixes used for halogens in IUPAC nomenclature include fluoro, chloro, bromo and _____.

Answer: iodo

22. In geminal dihalides, both halogen atoms are attached to the _____ carbon atom.

Answer: same

23. In vicinal dihalides, halogen atoms are attached to _____

carbon atoms.

Answer: adjacent

24. Gem-dihalides are also called _____ halides in common nomenclature.

Answer: alkylidene

25. Vic-dihalides are also called _____ dihalides in common nomenclature.

Answer: alkylene

26. The prefixes o-, m- and p- stand for ortho, meta and _____.

Answer: para

27. In IUPAC naming of dihalo benzene compounds, 1,2-, 1,3- and 1,4- numbering system is used instead of _____ notation.

Answer: o-, m-, p-

28. Haloalkanes are also known as _____ halides.

Answer: alkyl

29. Haloarenes are also known as _____ halides.

Answer: aryl

30. Fluorine, chlorine, bromine and iodine are collectively called _____.

Answer: halogens

MCQs with Answers and Explanations – Haloalkanes and Haloarenes

1. Haloalkanes contain halogen attached to:
- A) sp^2 carbon atom
 - B) sp^3 carbon atom
 - C) Triple bonded carbon
 - D) Oxygen atom

Answer: B) sp^3 carbon atom

Explanation: In haloalkanes, halogen atoms are attached to sp^3 hybridised carbon atoms.

2. Haloarenes contain halogen attached to:
- A) sp^3 carbon atom
 - B) Saturated carbon atom
 - C) sp^2 carbon atom
 - D) Nitrogen atom

Answer: C) sp^2 carbon atom

Explanation: In haloarenes, halogen atoms are attached directly to sp^2 hybridised carbon atoms of aromatic rings.

3. Which of the following is a haloalkane?
- A) Chlorobenzene
 - B) Bromobenzene
 - C) Chloroethane
 - D) Phenol

Answer: C) Chloroethane

Explanation: Chloroethane contains halogen attached to an alkyl group.

4. Which of the following is a haloarene?
- A) Ethyl chloride
 - B) Chlorobenzene

- C) Methyl bromide
- D) Vinyl chloride

Answer: B) Chlorobenzene

Explanation: Chlorobenzene has chlorine attached directly to a benzene ring.

5. The general formula of haloalkanes is:

- A) $R-OH$
- B) $R-COOH$
- C) $R-X$
- D) $R-NH_2$

Answer: C) $R-X$

Explanation: Haloalkanes are represented by the general formula $R-X$ where X is a halogen atom.

6. Which halogen compound is used in the treatment of malaria?

- A) Halothane
- B) Thyroxine
- C) Chloroquine
- D) Chloramphenicol

Answer: C) Chloroquine

Explanation: Chloroquine is an important antimalarial drug.

7. Halothane is used as:

- A) Antibiotic
- B) Fertilizer
- C) Anaesthetic
- D) Dye

Answer: C) Anaesthetic

Explanation: Halothane is used during surgical operations as an anaesthetic.

8. Chloramphenicol is used for treating:
- A) Malaria
 - B) Goiter
 - C) Typhoid fever
 - D) Diabetes

Answer: C) Typhoid fever

Explanation: Chloramphenicol is an antibiotic effective against typhoid.

9. Deficiency of thyroxine causes:
- A) Malaria
 - B) Goiter
 - C) Cholera
 - D) Tuberculosis

Answer: B) Goiter

Explanation: Lack of iodine-containing hormone thyroxine causes goiter.

10. Compounds containing one halogen atom are called:
- A) Dihalo compounds
 - B) Polyhalo compounds
 - C) Monohalo compounds
 - D) Vicinal compounds

Answer: C) Monohalo compounds

Explanation: Monohalo compounds contain only one halogen atom.

11. Compounds containing two halogen atoms are called:
- A) Monohalo compounds
 - B) Dihalo compounds
 - C) Polyhalo compounds
 - D) Aromatic compounds

Answer: B) Dihalo compounds

Explanation: Dihalo compounds contain two halogen atoms.

12. Which type of bond is present in haloarenes?
- A) sp^3 C—X bond
 - B) sp^2 C—X bond
 - C) Ionic bond
 - D) Hydrogen bond

Answer: B) sp^2 C—X bond

Explanation: In haloarenes, halogen is attached to sp^2 hybridised carbon atom.

13. Allylic halides contain halogen attached to carbon adjacent to:
- A) Benzene ring
 - B) Triple bond
 - C) Double bond
 - D) Carbonyl group

Answer: C) Double bond

Explanation: Allylic halides have halogen on carbon next to a C=C double bond.

14. Benzylic halides contain halogen attached to carbon adjacent to:
- A) Triple bond

- B) Benzene ring
- C) Hydroxyl group
- D) Carbonyl group

Answer: B) Benzene ring

Explanation: Benzylic halides contain halogen on carbon next to benzene ring.

15. Halogen attached directly to double bonded carbon forms:
- A) Allylic halide
 - B) Benzylic halide
 - C) Vinylic halide
 - D) Alkyl halide

Answer: C) Vinylic halide

Explanation: Vinylic halides contain halogen directly attached to sp^2 carbon of double bond.

16. Halogen attached directly to aromatic ring forms:
- A) Alkyl halide
 - B) Aryl halide
 - C) Allylic halide
 - D) Vicinal halide

Answer: B) Aryl halide

Explanation: Aryl halides contain halogen attached directly to aromatic ring.

17. In common nomenclature, alkyl halides are named by:
- A) Naming halogen first
 - B) Naming alkyl group followed by halide

- C) Using numbers only
- D) Using symbols only

Answer: B) Naming alkyl group followed by halide

Explanation: Common names are formed from alkyl group + halide name.

18. In IUPAC nomenclature, haloalkanes are named as:
- A) Alcohols
 - B) Ketones
 - C) Halo-substituted hydrocarbons
 - D) Acids

Answer: C) Halo-substituted hydrocarbons

Explanation: Haloalkanes are treated as substituted hydrocarbons in IUPAC system.

19. Which prefix is used for iodine in IUPAC nomenclature?
- A) Chloro
 - B) Fluoro
 - C) Bromo
 - D) Iodo

Answer: D) Iodo

Explanation: The prefix used for iodine is iodo.

20. In geminal dihalides, both halogens are attached to:
- A) Adjacent carbon atoms
 - B) Same carbon atom

- C) Different chains
- D) Aromatic ring

Answer: B) Same carbon atom

Explanation: Geminal dihalides contain both halogens on the same carbon atom.

21. In vicinal dihalides, halogens are attached to:
- A) Same carbon atom
 - B) Adjacent carbon atoms
 - C) Benzene ring
 - D) Oxygen atom

Answer: B) Adjacent carbon atoms

Explanation: Vicinal dihalides contain halogens on neighbouring carbon atoms.

22. Gem-dihalides are also called:
- A) Alkylene halides
 - B) Alkylidene halides
 - C) Vinylic halides
 - D) Aryl halides

Answer: B) Alkylidene halides

Explanation: Gem-dihalides are commonly known as alkylidene halides.

23. Vic-dihalides are also called:
- A) Alkylidene halides
 - B) Alkylene dihalides
 - C) Aryl halides
 - D) Benzylic halides

Answer: B) Alkylene dihalides

Explanation: Vicinal dihalides are commonly called alkylene dihalides.

24. Which notation is used in common naming of dihalo benzene compounds?

A) 1,2- ; 1,3- ; 1,4-

B) α , β , γ

C) o-, m-, p-

D) cis-trans

Answer: C) o-, m-, p-

Explanation: Common system uses ortho, meta and para notation.

25. Which numbering system is used in IUPAC naming of dihalo benzene compounds?

A) α , β , γ

B) o-, m-, p-

C) Roman numerals

D) 1,2- ; 1,3- ; 1,4-

Answer: D) 1,2- ; 1,3- ; 1,4-

Explanation: IUPAC system uses numerical positions for naming.