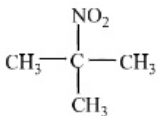
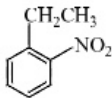


### Multiple choice questions (MCQ)

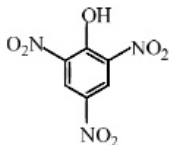
1. Which functional group is present in a nitro compounds?
- (a) -COOH (b) -NO<sub>2</sub>  
(c) C-O-C (d) -SH
2. Which one of the followings is a nitroalkane?
- (a) CH<sub>3</sub>SH (b) CH<sub>3</sub>OH  
(c) CH<sub>3</sub>CH<sub>2</sub>NO<sub>2</sub> (d) CH<sub>3</sub>SCH<sub>3</sub>
3. What is the IUPAC name of the given compound?



- (a) 2-Methyl-2-nitropropane (b) Ethanethiol  
(c) Triethyl nitro (d) Ethyl hydrogen sulphide
4. What is the IUPAC name of the given nitroarene?



- (a) 2-Methyl-2-nitropropane (b) 2-Nitroethyl benzene  
(c) *p*-Nitrotoluene (d) 2-Nitroethyl toluene
5. The given structure is for



- (a) Aspirin (b) RDX  
(c) Picric acid (d) Trinitrotoluene

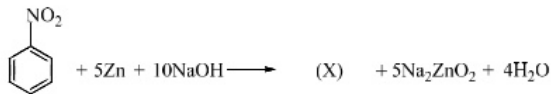
6. Nitroarenes can be obtained
- (a) By heating haloalkanes with potassium sulphide.
  - (b) By the oxidation of alcohols with  $\text{KMnO}_4$ .
  - (c) By heating alkyl halide with alcoholic  $\text{AgNO}_2$ .
  - (d) By the nitration of benzene.
7. Nitroalkanes are more acidic than corresponding hydrocarbons
- (a) Because their boiling points are higher.
  - (b) Because they are heavier than water.
  - (c) Because they have a pleasant odor.
  - (d) Due to the electron withdrawing nature of nitro group.
8. The reduction nitroalkanes with Fe and concentrated HCl give
- (a) Hydroazobenzene
  - (b) Primary amines
  - (c) Hydroxylamine
  - (d) Azobenzene
9. Secondary nitroalkanes undergo hydrolysis with boiling HCl give
- (a) Ketones
  - (b) Carboxylic acids
  - (c) Thioethers
  - (d) Alcohols
10. Reduction in which the nitroalkanes are reduced to corresponding N-alkyl hydroxyl amines with zinc dust and ammonium chloride solution is conducted in
- (a) Acidic medium
  - (b) Alkaline medium
  - (c) Neutral medium
  - (d) None of these
11. Nitrobenzene is converted into azobenzene by reduction with
- (a) Alkaline sodium stannite
  - (b) Alkaline sodium arsenite
  - (c) Zinc and ammonium chloride
  - (d) Zinc metal and aqueous sodium hydroxide
12. Reduction of nitrobenzene with  $\text{LiAlH}_4$  will produce
- (a) Azoxybenzene
  - (b) p-Aminophenol
  - (c) m-Dinitrobenzene
  - (d) Aniline
13. Nitroethane reacts with nitrous acid ( $\text{HNO}_2$ ) to form
- (a) Nitrolic acid
  - (b) Nitrous oxide
  - (c) Hydroxylamine
  - (d) Ethanamide
14. Tertiary nitroalkanes cannot tautomerise because they

- (a) Are stable (b) Are not stable  
 (c) Are saturated hydrocarbons (d) Do not contain  $\alpha$ -hydrogen

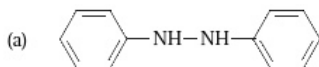
15. Which of the following gives a ketone when boiled with concentrated HCl?

- (a) Primary nitroalkanes (b) Secondary nitroalkanes  
 (c) Tertiary nitroalkanes (d) All of the above

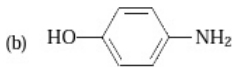
16. The major product (X) of the reaction is:



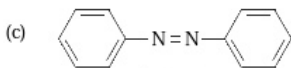
Nitrobenzene



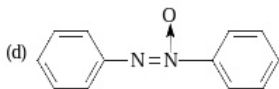
hydrazobenzene



p-aminophenol



azobenzene

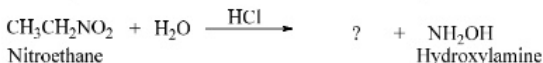


azoxybenzene

17. Nitromethane on reduction with Zn and  $\text{NH}_4\text{Cl}$  gives:

- (a) Methanamide (b) Ethylamine  
 (c) N-Methylhydroxy amine (d) Methylamine

18. Which compound is obtained at the end of the following reaction?



- (a) Acetic acid (b) Formaldehyde  
 (c) Methanethiol (d) Methyl chloride

19. Chloropicrin is formed by the halogenation of nitromethane with

- (a) Bromine (b) Chlorobenzene  
 (c) Chlorine (d) Toluene

20. The reduction of nitrobenzene with zinc and sodium hydroxide gives

- (a) Azobenzene (b) Azoxybenzene  
 (c) Nitrosobenzene (d) Hydrazobenzene

21. Picric acid can be obtained from

- (a) Hydrolysis of picryl chloride  
 (b) Phenol by sulphonation followed by the nitration  
 (c) Nitration of benzoic acid  
 (d) Nitration of toluene
22. On reduction with  $\text{NaHCO}_3$ , picric acid gives  
 (a) Picramide (b) *m*-Dinitrobenzene  
 (c) Sodium picrate (d) Picramic acid
23. The reduction of picric acid with sodium sulphide ( $\text{Na}_2\text{S}$ ) in presence of water gives  
 (a) Picramic acid (b) Picramide  
 (c) Sodium picrate (d) Trichlorobenzene
24. The reduction of nitrobenzene with Sn and HCl gives  
 (a) Azoxybenzene (b) Hydroazobenzene  
 (c) Primary aryl amines (d) *p*-Aminophenol
25. Primary nitroalkanes are upon hydrolysis with concentrated hydrochloric acid gives  
 (a) Primary amines (b) Ketones  
 (c) Alcohols (d) Carboxylic acids

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### 8. 16 ANSWER (MCQs)

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1. (b)	2. (c)	3. (a)	4. (b)	5. (c)
6. (d)	7. (d)	8. (b)	9. (a)	10. (c)
11. (a)	12. (d)	13. (a)	14. (d)	15. (b)
16. (a)	17. (c)	18. (a)	19. (c)	20. (d)
21. (b)	22. (c)	23. (a)	24. (c)	25. (d)

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### 8. 17 REFERENCES

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- Douglas E. Rickert, Toxicity of Nitroaromatic Compounds, Chemical Industry Institute of Toxicology Series, CRC Press, Washington, 1985.