DPP
DAILY PRACTICE PROBLEMS

**CLASS : XIIth** **SUBJECT : CHEMISTRY**
**DATE :** **DPP NO. : 2**

## Topic :-ORGANIC CHEMISTRY - SOME BASIC PRINCIPLES AND TECHNIQUES

1. The ease of dehydrohalogenation of alkyl halide with alcoholic KOH is
   a) $3°<2°<1°$ b) $3°>2°>1°$ c) $3°<2°>1°$ d) $3°>2°<1°$

2. Lactic acid in which a methyl group, a hydroxyl group, a carboxylic acid group and a hydrogen atom are attached to a central carbon atom shows optical isomerism due to the molecular geometry at the :
   a) Carbon atom of the methyl group
   b) Carbon atom of the carboxylic acid group
   c) Central carbon atom
   d) Oxygen of the hydroxyl group

3. Which of the following process is suitable for the purification of aniline?
   a) Simple distillation b) Fractional distillation
   c) Fractional crystallisation d) Steam distillation

4. Maleic and fumaric acids are :
   a) Tautomers b) Geometrical isomers c) Chain isomers d) Functional isomers

5. $CH_3Br + Nu^- \longrightarrow CH_3-Nu + Br^-$ The decreasing order of the rate of the above reaction with nucleophiles ($Nu^-$) $A$ to $D$ is :
$[Nu^- = (A)PhO^-, (B)AcO^-, (C)HO^-, (D)CH_3O^-]$
   a) $D > C > A > B$ b) $D > C > B > A$ c) $A > B > C > D$ d) $B > D > C > A$

6. Which one is least reactive in a nucleophile substitution reaction?
   a) $CH_3CH_2Cl$ b) $CH_2 = CHCH_2Cl$ c) $CH_2 = CHCl$ d) $(CH_3)_3CCl$

7. In methanol solution, bromine reacts with ethylene to yield $BrCH_2CH_2OCH_3$ in addition to 1,2-dibromoethane because :
   a) The intermediate carbocation may react with $Br^-$ or $CH_3OH$
   b) The methyl alcohol solvolates the bromine
   c) The reaction follows Markownikoff's rule
   d) This is a free radical mechanism

8. Number of tertiary carbon atoms in tertiary butyl alcohol is :

a) 1 b) 2 c) Zero d) 4

9. Which step is chain propagation step in the following mechanism?

(i) $Cl_2 \xrightarrow{h\nu} Cl^{\bullet} + Cl^{\bullet}$

(ii) $Cl^{\bullet} + CH_4 \longrightarrow \overset{\bullet}{C}H_3 + HCl$

(iii) $Cl^{\bullet} + Cl^{\bullet} \longrightarrow Cl_2$

(iv) $\overset{\bullet}{C}H_3 + Cl^{\bullet} \longrightarrow CH_3Cl$

a) (i) b) (ii) c) (iii) d) (iv)

10. The IUPAC name of the compound $CH_3 - N \rightleftharpoons C$ is :

a) Ethane nitrile b) Methane isonitrile c) Ethane isonitrile d) None of these

11. IUPAC name of

$CH_3CH_2C(Br) = CH - Cl$ is

a) 2-bromo-1-chloro butene-1 b) 1-chloro-2-bromo butene-1

c) 3-chloro-2-bromo butene-2 d) None of the above

12. Which of the following undergoes nucleophilic substitution exclusively $S_N1$ mechanism?

a) Benzyl chloride b) Isopropyl chloride c) Chlorobenzene d) Ethyl chloride

13. The sigma bond energy of C—H bond in $C_2H_6$ is :

a) 99 kcal b) 140 kcal c) 200 kcal d) 60 kcal

14. The general formula $C_nH_{2n}O_2$ could be for open chain

a) Diketones b) Carboxylic acids c) Diols d) Dialdehydes

15. The correct sequence of steps involved in the mechanism of Cannizzaro's reaction is

a) Nucleophilic attack, transfer of $H^-$and transfer of $H^+$

b) Transfer of $H^-$ , transfer of $H^+$ and nucleophilic attack

c) Transfer if $H^+$, nucleophilic attack and transfer of $H^-$

d) Electrophilic attack by $OH^-$, transfer of $H^+$ and transfer of $H^-$

16. Examine the following statements regarding $S_N$ 2 reaction

(1) The rate of reaction is independents of concentration of nucleophile

(2) The nucleophile attacks the carbon atom on the side of molecule opposite to the group being displaced

(3) The reaction proceeds with simultaneous bond formation and rupture

Which of the above written statements is correct?

a) 1, 2 b) 1, 3 c) 1, 2, 3 d) 2, 3

17. Propanol and propanone are

a) Functional isomers b) Enantiomers c) Chain isomers d) Structural isomers

18. Diastereomers can be separated by :
a) Fractional distillation b) Simple distillation c) Electrophoresis
d) All of these

19. Angle strain in cyclopropane is
a) 24°44’ b) 9°44’ c) 44’ d) -5°16’

20. The function of $AlCl_3$ in Friedel-Craft’s reaction is
a) To absorb HCl b) To absorb water c) To produce nucleophile d) To produce electrophile