CHEMISTRY

JEE (MAIN AND ADVANCED) CHEMISTRY

APPENDICES -REVISION EXERCISE

Alkyl And Aryl Halides

1. Alkyl bromide is

A. $CH_2 = CH - CH_2Br$

B. $C_6H_5 - Br$

C. $H_2C = \overset{Br}{\overset{|}{C}}H$

D. $CH_3 - CH = CH_2 - Br$

Answer: A

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2. In which of the following chlorine is least reactive

A. Ethyl chloride

B. Chlorobenzene

C. Allyl chloride

D. Methyl chloride

Answer: B

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3. Which of the following statement is correct

A. Decreasing order of density of alkyl halides is

$RI > RBr > RCl > RF$

B. The stability order of alkyl halides is $RF > RCl > RBr > RI$

C. Among isomeric alkyl halides the decreases in boiling point is

$1^\circ > 2^\circ > 3^\circ$

D. All are correct

Answer: D

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4. Which of the following order is correct among the following ?

$C - X$ Bond length order is

$H_3C - F < CH_3C - Cl < H_3C - Br < H_3C - l$

(ii) C- X Bond enthalapies order is

$H_3C - Cl > H_3C - F > CH_3 - Br > CH_3 - I$

(III) C-X Bond dipole moment order is

$H_3C - Cl > H_3C - F > CH_3 - Br > CH_3 - I$

A. Only I & II

B. Only II & III

C. Only I & III

D. All are correct

Answer: D

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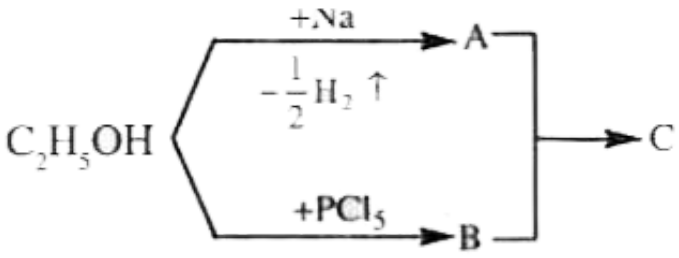
5.



Total number of hybrid orbitals involved in bonding in a molecule of $'C'$ is

A. 12

B. 10

C. 18

D. 6

Answer: C

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6. $CH_3CH_2Cl \xrightarrow{\text{alc KOH}} X\_(\text{ or } g)$

Wrong statement about the above reaction.

A. Hybridization of 'C' changed from $sp^3 \text{to} sp^2$

B. $C-C$ bond length is decreased

C. C-H bond length is increased

D. Bond angle is increased

Answer: C

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7. Identify Z in the following series

$C_2H_5l \xrightarrow{\text{Alc KOH}} X \xrightarrow{Br_2} Y \xrightarrow{KCN} Z$

A. CH_3CH_2CN

B. $N\mathbb{C}H_2 - CH_2CN$

C. $BrCH_2 - CH_2CN$

D. $BrCH = CHCN$

Answer: B

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8. Ethyl bromide reacts with lead- sodium alloy to form

A. Tetraethyl lead

B. Tetramethyl bromide

C. Both (1) and (2)

D. None of these

Answer: A

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9. (i) $CH_3CH_2Cl \xrightarrow{\text{KOH (aqueous)}} X$

(ii) $\xrightarrow[170^\circ C]{\text{ConC . } H_2SO_4} Y \xrightarrow{Cl_2 / H_2O} Z$ What is 'Z'?

A. Ethylene glycolz

B. Ethylene chlorohydrin

C. 1,2 -Dichloroethane

D. Ethyl chloride

Answer: B

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10. Compound A reacts with PCI_5 to give B which on treatment with KCN followed by hydrolysis gave propionic acid. What are A & B respectively?

A. $C_3H_8 \& C_3C_7Ci$

B. $C_2H_6 \& C_2H_5CI$

C. $C_2H_5OH \& C_2H_4CI_2$

D. $C_2H_5OH \& C_2H_5Cl$

Answer: D

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11. What are X and Y respectively in the following reaction ?

$X \xrightarrow{PBr_3} C_2H_5Br \xrightarrow{AgOH\,(Aq)}$

A. CH_3OH, C_2H_6

B. $C_2H_5OH : C_2H_5Br$

C. $CH_3COOH : CH_3CH_2OH$

D. C_2H_5OH, C_2H_5OH

Answer: D

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12. Consider the following reactions

$$X + HCl \xrightarrow[(\text{Addition})]{\text{Anhydrous } AlCl_3} C_2H_5Cl$$

$$C_2H_5Cl \xrightarrow[(\text{Substitution})]{\text{Anhydrous } ZnCl_2 / HCl} \leftarrow Y$$

Y can be converted to X on heating with at temperature

A. $Al_2O_3, 350^\circ C$

B. $Cu, 300^\circ C$

C. $Ca(OH)_2 + CaOCl_2 60^\circ$

D. $NaOH / I_2, 60^\circ C$

Answer: A

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13. $C_2H_5Cl + Mg \to x \xrightarrow{H_2O} Y$. C_2H_5Cl overset(LiAlH_4)(rarr) z`, then y and z are

A. same alkenes

B. different alkanes

C. same alkanes

D. alkynes

Answer: C

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14. 1-Bromopropane on reaction with $LiAlH_4$ yields

A. Propane

B. Hexane

C. Propane

D. Propyne

Answer: A

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15. $CH_3 - CH_2 - CH_2 - Cl \xrightarrow[KOH]{alc} B \overset{HBr}{C} \xrightarrow[\text{ether}]{Na} D.$ In the above sequence the product D is

A. Propane

B. 2-3 Dimethyl butane

C. Hexane

D. Allyl bromide

Answer: B

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16. The carbon compound "A" forms "B" with sodium metal and again forms "C" with PCI, but "B" reacts with "C" to form diethyl ether. Therefore A, B and C are respectively.

A. $C_2OH, C_2H_5OCl, C_2H_5ONa$

B. C_2H_5OH, C_2H_6, C_2H_5

C. $C_2H_5Cl, C_2H_6, C_2H_5Cl$

D. $C_2H_5OH, C_2, H_5ONa, C_2H_5Cl$

Answer: D

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17. $CH_4 + Cl_2 \xrightarrow[-HCl]{hv} A \xrightarrow[-HCl]{+Cl_2} B \xrightarrow[-HCl]{+Cl_2} CC \xrightarrow[-HCl]{+Cl_2} D$

Correct order of Dipole moments is

A. $D > C > B > A$

B. $C > B > A > D$

C. $A > C > B > D$

D. $A > B > C > D$

Answer: D

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18. Which of the following is the correct order of decreasing $S_N 22$ reactivity' ? (X=a halogen)

A. $RCH_2X > R_2CHX > R_3CX$

B. $R_3CX > R_2CHX > RCH_2X$

C. $R_2CHX > R_3CX > RCH_2X$

D. $RCH_2X > R_3CX > R_2CHX$

Answer: A

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19. The ratio of relative rates of isopropyl bromide and ethyl bromide in $S_N 1$ reaction is

A. $11:1$

B. $1:11$

C. $1:100$

D. $1:1000$

Answer: A

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20. Teritiary alkyl halides are practically inert to substitution by S_N2 mechanism because of

A. Insolubility

B. Instability

C. Inductive effect

D. Steric hinderance

Answer: D

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21. Of the five isomeric hexanes, the isomer which can give two mono chlorinated compounds is

A. n-hexane

B. 2,3 -dimethyl butane

C. 2,2 dimethyl pentane

D. 2-methyl pentane

Answer: B

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22. Which of the following reaction will yields 2,2-dibromopropane ?

A. $CH_3 - CH = CH_2 + HBr \rightarrow$

B. $CH_3 - C \equiv CH + 2HBr \rightarrow$

C. $CH_3CH = CHBr + HBr \rightarrow$

D. $HC \equiv CH + 2HBr \rightarrow$

Answer: B

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23. Isopropyl chloride undergoes hydrolysis by

A. SN^{-1} mechanism

B. SN^2 mechanism

C. SN^1 and SN^2 mechanisms

D. ether SN^1 or SN^2 mechanism

Answer: D

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24. Among the following which one has weakest carbon-halogen bond ?

A. Benzyl bromide

B. Bromobenzene

C. Vinyl bromide

D. Benzyl chloride

Answer: A

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25. The order of reactivities of the following alkyl halides for a S_N2 reaction is

A. $RF > RCl > RBr > Rl$

B. $RF > RBr > RCl > RI$

C. $RCl > RBr > RF > RI$

D. $RI > RBr > Rcl > RF$

Answer: D

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26. Incorrect statement about nucleophilic substitution reaction is

A. Reactivity of halides towards SN^1 mechanism is $3^\circ > 2^\circ > 1^\circ$ alkyl halides

B. Polar solvents favour SN^1 reactions

C. Reactivity of halides towards SN^2 mechanism is $1^\circ > 2^\circ > 3^\circ$ alkyl halide

D. Low concentration of nucleophile favours SN^2 mechanism

Answer: D

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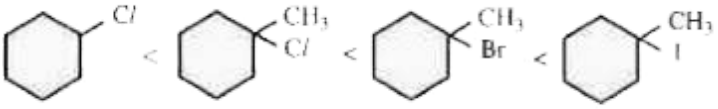
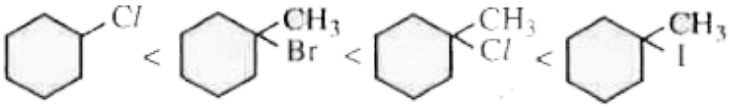
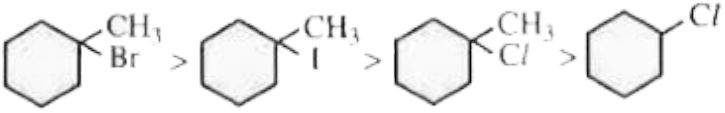
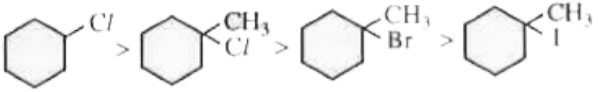
27. Pick up the correct order of reactivity of the following compounds in SN^1 reactions.

A. 

B. 

C. 

D. 

Answer: A

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28. Arrange the following

$CH_3CH_2CH_2Cl(I), CH_3CH_2 - CHCl - CH_3(II), (CH_3)_2CHCH_2Cl(II$

in order of decreasing tendency towards S_N^2 reaction

A. $I > III > II > IV$

B. $III > IV > II > I$

C. $II > I > III > IV$

D. $IV > III > II > I$

Answer: A

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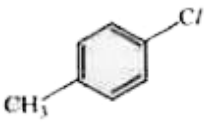
29. Which of the following will be the least reactive towards nucleophilic substitution?

A. c_2H_5CI

B. ` (##AKS_NEO_CAO_CHE_XII_V02_P03_APP_E01_029_O02.png" width="30%">

C. ` (##AKS_NEO_CAO_CHE_XII_V02_P03_APP_E01_029_O03.png" width="30%">

D. 

Answer: D

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30. The correct order of reactivity of alkyl halides: $CH_3CH_2Cl, CH_3CHClCH$ and $(CH_3)_3CCl$ towards dehydrohalogenation ?

A. $CH_3CH_2Cl > CH_3CHCICH_3 > (CH_3)_3\mathbb{C}l$

B. $CH_3CHClCH_3 > (CH_3)_3CCl > CH_3CH_2Cl$

C. $(CH_3)_3CCl > CH_3CH_2Cl > CH_3CHClCH_3$

D. $(CH_3)_3CCl > CH_3CHClCH_3 > CH_3CH_2Cl$

Answer: D

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31. Which of the following compounds will react readily with ethanolic KCN ?

A. Chlorobenzene

B. Vinyl Chloride

C. Allyl Chloride

D. 4- Chlorotoluene

Answer: C

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32. The reaction of toulene with Cl_2 in presence of $FeCl_3$ gives predominently

A. m-Chloro toluene

B. Benzoyl chloride

C. Benzyl chloride

D. o-&p- Chloro toulenes

Answer: D

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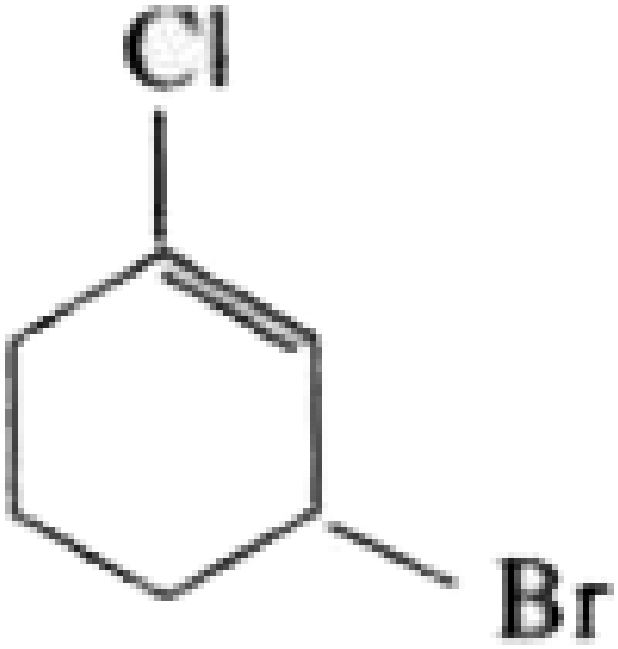
33. The IUPAC name of the compound shown below is



A. 1-bromo-3 chloro cyclohexene

B. 2-bromo-6-chloro cyclohex -1- ene

C. 6- bromo-2- chloro cyclohexene

D. 3-bromo -1- chloro cylohexene

Answer: D

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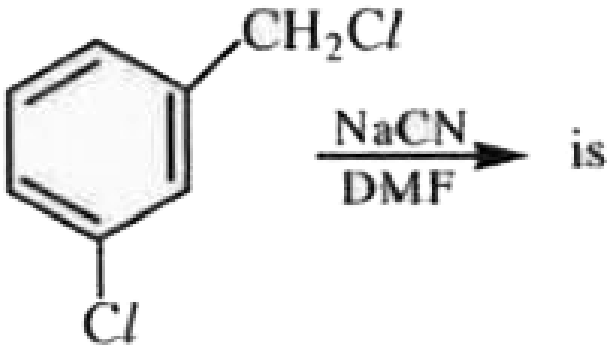
34. The structure of the major product formed in the following reaction



A. ` (##AKS_NEO_CAO_CHE_XII_V02_P03_APP_E01_034_O01.png"

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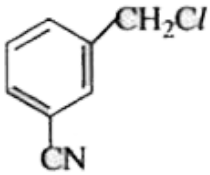
B. ` (##AKS_NEO_CAO_CHE_XII_V02_P03_APP_E01_034_O02.png" width="30%">

C. ` (##AKS_NEO_CAO_CHE_XII_V02_P03_APP_E01_034_O03.png" width="30%">

D. 

Answer: A

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35. Which of the following is least reactive towards nucleophilic displacement reaction when treated with aqueous KOH ?

A. 2,4,6 -Trinitrochlorobenzene

B. 2,4-Dinitrochlorobenzene

C. 4-Nitrochlorobenzene

D. 3- Nitrochlorobenzene

Answer: D

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36. IUPAC name of DDT is

A. 1,1,1 -Trichloro -2,2 -bis (4- chloropheny1) ethane

B. p,p ' - Dichloro dipheny trichloro ethane

C. p,p'- Dichloro dipheny trichloro benzene

D. Dichloro dipheny 1 tetrachloro ethane

Answer: A

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37. In which one of the following halides, $C_{sp^2} - X$ bond is present?

A. Allyl halides

B. Benzyl halide

C. Aryl halide

D. Alkyl halide

Answer: C

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38. IUPAC name of the compound with the molecular formula C_4H_9Br and least possible boiling point is

A. 2-Bromo -2- methylpropane

B. 2- Bromobutane

C. 1- Bromobutane

D. 1-Bromo -2- methylpropane

Answer: A

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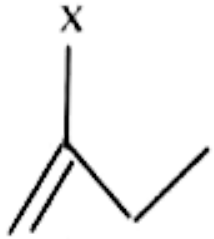
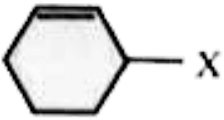
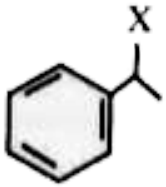
39. Match the following

List - I	List - II (type of halide)
1) 	a) Alkyl halide
2) 	b) Aryl halide
3) 	c) Vinyl halide
	d) Benzyl halide
d) 	e) Allyl halide

A. $\begin{matrix} 1 & 2 & 3 & 4 \\ e & c & b & d \end{matrix}$

B. $\begin{matrix} 1 & 2 & 3 & 4 \\ a & c & e & d \end{matrix}$

C.
1	2	3	4
a	b	c	d

D.
1	2	3	4
e	b	c	a

Answer: B

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40. In reactions the incorrect order of reactivity of nucleophies is

A. $I^- > Br^- > Cl^- > F^-$

B. $CH_3O^- > CH_3OH$

C. $RS^-I^- > CN^-NH_3 > Cl^-$

D. $F^- > Cl^- > Br^-I^-$

Answer: D

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41. Incorrect statement about nucleophilic substitution reaction is

A. A bulky nucleophilic prefect elimination

B. Benzy halides are more reactive in S_N1 reactions

C. Aryl halides are more reactive than alkyl halides

D. Nucleophilic has no influenc on the rate of S_N1 reactios

Answer: C

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42. In the reaction with $CH_3I,$ the most reactive nucleophile among the following is

A. F^-

B. I^-

C. RS^-

D. CH_3OH

Answer: C

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43. Correct statement about the electrophilic substitution in benzene ring is

A. Halogens are benzene ring deactivating group due to resonance

B. Halogens are ortho and para directing groups due to their -I effect.

C. Halogens are ortho and para directing and benzene ring activating groups.

D. Halogens are benzene ring deactivating groups due to their -I effect.

Answer: D

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44. $CH_3 - Br \xrightarrow[\text{ether}]{Mg} X \xrightarrow{(CH_3)_3C-OH} A$. Product A is

A. CH_4

B. $(CH_3)_3CH$

C. $(cH_3)_3C - O - Br$

D. $(CH_3)_3C - O - CH_3$

Answer: A

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45. Halide most readily hydrolyses is (SN_1)

A. C_6H_5Cl

B. $(C_6H_5)_2CHCl$

C. $C_6H_5CH_2Cl$

D. $(C_6H_5)_3CCl$

Answer: D

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46. Which of the following compounds would be hydrolysed most easily ?

A. C_2H_5Br

B. CH_3Br

C. $CH_2 = CH - Br$

D. $CH_2 = CH - CH_2Br$

Answer: D

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47. An alkyl halide on reaction with sodium in the presence of ether gives 2, 2, 5, 5, - tetramethyl hexane. The alkyl halide possibly

A. 1- Chloropentane

B. 1- Chloro -2,2 dimethylpropane

C. 3- Chloro-2,2-dimethybutane

D. 2- Chloro -2- methybutane

Answer: B

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48. neo Pentyl chloride on dyhydrohalogenation (using low conc. Of base) yields mainly

A. 2- Methyl but 2-ene

B. 2- Methyl but -1- ene

C. 3- Methyl but -1-ene

D. 2- pentene

Answer: A

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49. 2-chloro-1-Phenylpropane when treated with alcoholic KOH gives ... as the major product

A. 1- Phenylpropene -1

B. 3- Phenylpropene -1

C. 1- Phenyl -2 -propanol

D. 3- Phenyl -1- propanol

Answer: A

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50. In the following sequence of reaction , $CH_3CH_2Br \xrightarrow{KOH\,(alc)} X \xrightarrow{Br_2} Y \xrightarrow{KOH\,(alc)} Z$, Z is

A. $(CH_3)_2CH - CN$

B. $Br - CH = CH - CN$

C. $CH_2 = CH - CH_2CN$

D. $CH_2 = CH - CHBr - CN$

Answer: C

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51. An unknown alkyl halide (A) reacts with alcoholic KOH to produce a hydrocarbon (C_4H_8). Ozonolysis of the hydrocarbon forms one mole of propionaldehyde and one mole of formaldehyde. Suggest which organic structure among the following is the correct structure of the above alkyl halide (A) ?

A. $CH_3CH_2CH_2CH_2Br$

B. $CH_3CH(Br)CH(Br)CH_3$

C. $CH_3CH_2CH(Br)CH_3$

D. $Br(CH_2)_4Br$

Answer: A

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52. Neopentyl alcohol $\xrightarrow{+HCl\,/\,\text{anhydrous}\,ZnCl_2} A,$ Here $'A'$ is

A. Neopentyl chloride

B. n-pentyl chloride

C. 2- Chloropentane

D. ter-pentyl chloride

Answer: D

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53. Allyl chloride on dehydrochlorination gives

A. Propadiene

B. Propylene

C. Allyl alcohol

D. Acetone

Answer: A

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54. Bottles containing C_6H_5I and $C_6H_5CH_2I$ lost their original labels. They were separately taken in test tubes and boiled with NaOH solution . The end solution in each tube was made acidic with dilute HNO_3 and some $AgNO_3$ solution added. Solution B gave an yellow precipitate. Which one of the following statement is true for the experiment ?

A. Addition of HNO_3 was unnecesaary

B. A was C_6H_5I

C. A was $C_6H_5CH_2I$

D. B was C_6H_5I

Answer: B

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55. 'Pyrene' is the trade name of ..... which is used as fire extinguisher

A. CO_2

B. $CHCl_3$

C. CCl_4

D. CH_5Cl_2

Answer: C

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56. Which of the following is the correct order of decreasing reactivity towards nucleophilic substitution reaction ?

A. n-Propyl chloride $>$ Allyl chloride $>$ Vinyl chloride

B. Allyl chloride $>$ n- Propyl chloride $>$ Vinyl chloride

C. Vinyl chloride $>$ Allyl chloride $>$ n- propyl chloride

D. Vinyl chloride $>$ Allyl chloride $>$ n- Propyl chloride

Answer: B

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57. S_N2 reactions are

A. Stereospecific but not stereoselective

B. Stereoselective but not stereospecific

C. Stereoselective as well as stereospecific

D. Neither stereoselective nor stereospecific

Answer: C

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58. Methyl butane on reacting with bromine in the presence of sunlight gives mainly

A. 1- bromo -2- methyl butane

B. 2- bromo -2- methyl butane

C. 2- bromo -3- methyl butane

D. 1- bromo -3- methyl butane

Answer: B

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59. Which of the following halides would undergo nucleophilic substitution most readily (SN_1)?

A. 1- Chloro-1 butane

B. 2 - Chloro -1- butane

C. 3- Chloro -1- butene

D. 4- Chloro -1- butene

Answer: C

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60. Which branched chain isomer of the hydrocarbon with molecular mass 72u gives only one isomer of mono substituted alkyl halide ?

A. Tertiary butyl chloride

B. Neopentane

C. Isohexane

D. Neohexane

Answer: B

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61. What is DDT among the following

A. Greenhouse gas

B. A fertilizer

C. Biodegradable pollutant

D. Non-biodegradable pollutant

Answer: D

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62. 2- methyl butane on reacting with bromine in the presence of sunlight gives mainly:

A. 1- bromo-3- methylbutane

B. 2- bromo -3- methyl butane

C. 2 -bromo- 2 methyl butane

D. 1- bromo -2- methylbutane

Answer: C

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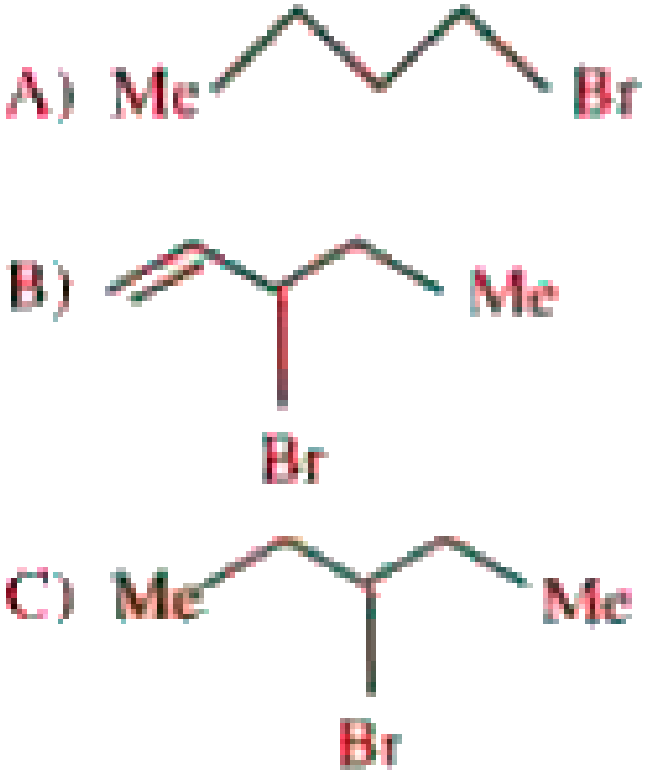
63. Consider the following bromides



The correct order of S_N1 reactivity is

A. $A > B > C$

B. $B > C > A$

C. $B > A > C$

D. $C > B > A$

Answer: B

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Alcohols

1. Identify Z in the following sequence of reactions

Ethanol

$$\xrightarrow{PBr_3} X \xrightarrow{Alc.KOH} Y \xrightarrow[(ii)\,H_2O,\,\text{heat}]{(i)\,Conc,\,H_2SO_4} ZCH_3COONH_4 \xrightarrow{\Delta} X \xrightarrow{P_2O_5} Y \xrightarrow{H_2O/H^+} Z$$

A. $CH_2 = CH_2$

B. CH_3CH_2OH

C. $CH_3CH_2 - O - CH_2CH_3$

D. $CH_3CH_2 - OSO_3H$

Answer: B

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2. In India. Ethyl alcohol is mainly manufactured by

A. Destructive distillation of wood

B. Hydrogenation of oils

C. Fermentation of molasses

D. Catalytic oxidation of ethane

Answer: C

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3. $C_2H_4 \xrightarrow[AlCl_3]{HCl} A \xrightarrow{KOH\,(aq.)} B \xrightarrow[140^\circ C]{Conc.\,H_2SO_4} C$

What is the final product?

A. C_2H_4

B. $C_2H_5 - O - C_2H_5$

C. C_2H_5OH

D. $C_2H_5 - O - SO_3H$

Answer: B

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4. The compound with formula $C_4H_{10}O$ yields a compound C_4H_8O on oxidation, the compound $C_4H_{10}O$ is

A. an aldehyde

B. an alcohol

C. a ketone

D. an anhydride

Answer: B

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5. When a mixture, containing PCl_3 and PCl_5 is heated with ethyl alcohol , a total of 4 moles of ethyl chloride is formed . Mole ratio of PCl_3 and PCl_5 in the mixture is

A. $3:1$

B. $1:1$

C. $1:3$

D. $2:1$

Answer: B

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6. $A + SOCl_2 \rightarrow B + SO_2 + HCl$

$X + Na \rightarrow C + H_2$

$B + C \rightarrow (C_2H_5)_2O + NaCl$

Then A and X are respectively

A. C_2H_5CI and C_2H_5ONa

B. C_2H_5ONa and C_2H_5Cl

C. C_2H_5OH and C_2H_5OH

D. C_2H_5OH and C_2H_5ONa

Answer: C

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7. In the Lucas test, terbidity is not shown by

A. 1° Alcohol

B. 2° Alcohol

C. 3° Alcohol

D. Phenol

Answer: A

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8. There are four alcohols P,Q,R and S which have 3,2,1 and zero alpha hydrogen atom (s) respectively. Which on of the following will give an alkene when heated with copper

A. P

B. Q

C. R

D. S

Answer: D

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9. Which of the following alcohols on oxidation give carboxylic acid with lasser number of carbon atoms?

A. $(CH_3)_3C - CH_2OH$

B. $(CH_3)_3COH$

C. $CH_3CH_2CHOHCH_3$

D. Both (2) and (3)

Answer: D

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10. Which of the following alcohols will not be easily oxidised by $K_2Cr_2O_7$ in dil. H_2SO_4 ?

A. CH_3OH

B. CH_3CH_2OH

C. $(CH_3)_3COH$

D. $CH_3CHOHCH_3$

Answer: C

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11. When vapour of an alcohol are passed over hot reduced copper, it gives an alkene. The alcohol is

A. Primary

B. Secondary

C. Tertiary

D. None of these

Answer: C

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12. A convenient reagent to distinguish ethyl alcohol from n-propyl alcohol is

A. Lucas reagent

B. Tollen's reagent

C. Schiff's reagent

D. Iodine with aq. NaOH solution

Answer: D

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13. Which of the following compounds decol - ourises aqueous bromine and gives white fumes of HCl on reaction with PCl_5 ?

A. $CH_3CH_2CH_2CH_2OH$

B. $CH_3COCH_2CH = CH_2$

C. $CH_3OCH_2CH_2CH_2OH$

D. $CH_3CH = CHCH_2CH_2OH$

Answer: D

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14. The compound that does not respond to haloform reaction is

A. $C_5H_{11}CHOHCH_3$

B. $CH_3CH_2CHOHC_2H_5$

C. $CH_3CHOHCH_3$

D. CH_3CH_2OH

Answer: B

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15. Tetiary butyl alcohol heated with conc. H_2SO_4 and the alkene thus formed is subjected to ozonolysis. The products of ozonolysis are reduced with $LiAIH_4$. The final products is/ are

A. 2- Methylpropan -2- ol

B. Mixture of methanol +ethanol

C. mixture of 2- propanol +methanol

D. Mixture of ethanol +formic acid

Answer: C

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16. $R-CH_2-CH_2OH$ can be converted into RCH_2CH_2COOH. The correct sequence of reagents is :

A. PBr_3, KCN, H_3O^+

B. $PBr_3, KCN, H_2/pt$

C. KCN, H_3O

D. HCN, PBr_3, H_3O^+

Answer: A

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17. When ethyl hydrogen sulphate is heated with excess alcohol at 410 K, the product obtained is

A. Ethane

B. Ethylene

C. Diethyl ether

D. Diethyl sulphate

Answer: C

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18. Maximum number of active hydrogens are present in

A. Acetic acid

B. Methane

C. Glycerol

D. Methanol

Answer: C

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19. How many promary structural alcohols isomers are possible for $C_5H_{11}OH$?

A. 5

B. 4

C. 2

D. 3

Answer: B

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20. Methanol is industrially prepared by

A. Oxidation of CH_4 by steam at 900° C

B. Reduction of HCHO using $LiAIH_4$

C. Reaction HCHO with a solution of NaOH

D. Reduction of CO using H_2 and $ZnO - Cr_2O_3$.

Answer: D

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21. For which of the following parameters, the structural isomers C_2H_5OH and CH_3OCH_3 would be expected to have the same values ? (Assume ideal behaviour)

A. Heat of vaporization

B. Gaseous denstities at the same tamperature and pressure

C. Boiling points

D. Vapour pressure at the temperature

Answer: B

Watch Video Solution

22. Among the following compounds which can be dehydrated very easily?

A. $CH_3CH_2CH_2CH_2CH_2OH$

B. $CH_3 - CH_2 - OH$

C. $CH_3CH_2 - \overset{\overset{OH}{|}}{\underset{\underset{CH_3}{|}}{C}} - CH_2CH_3$

D. $CH_3CH_2CH_2\overset{\overset{OH}{|}}{C}HCH_3$

Answer: C

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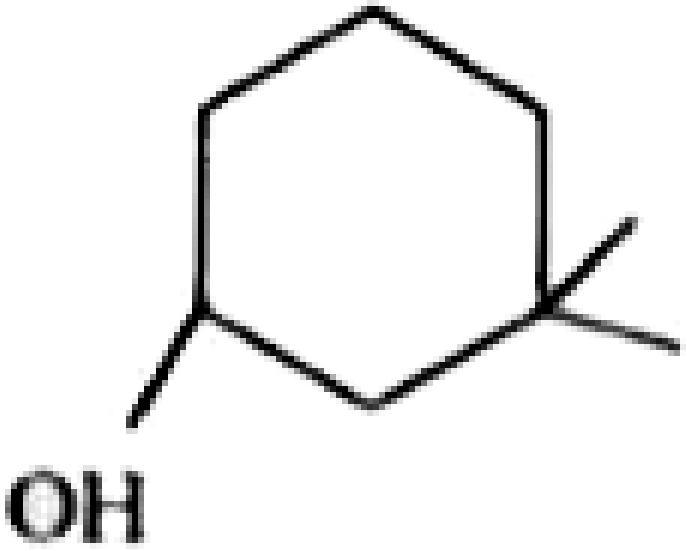
23. The IUPAC name of the compounds is



A. 3,3 -dimethyl -1- hydroxy cyclohexane

B. 1,1 -dimethyl -3- cyclohexane

C. 3,3 -dimethyl -1- cyclohexane

D. 1,1 - dimethyl 1-3- hydroxy cyclohexane

Answer: C

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24. Acid catalyzed hydration of alkenes except ethane leads to the formation of

A. Primary alcohol

B. Secondary or tertiary alcohol

C. mixture of primary and secondary alcohols

D. mixture of secondary and tertiary alcohols

Answer: B

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25. Among the following the one that gives positive iodoform test upon reaction with I_2 and NaOH

A. $PhCHOHCH_3$

B. $CH_3CH_2CH(OH)CH_2CH_3$

C. $C_6H_5CH_2CH_2OH$

D. $CH_3CH(CH_3)CH_2OH$

Answer: A

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26. $CH_3CH_2OH \xrightarrow{P+I_1} A \xrightarrow{Mg} B \xrightarrow{HCHO} C \xrightarrow{H_2O} D$. The compound D is

A. n-butyl alcohol

B. n- propyl alcohol

C. propanal

D. butanal

Answer: B

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27. Acid catalysed hydration of alkenes is

A. Electrophilic addition and intermediate is carbanion

B. Electrophilic addition and intermediate is carbonium ion

C. Nucleophilic addition and intermediate is carbonium ion

D. Freeradical addition

Answer: B

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28. Ethyl alcohol acts as nucleophile when it reacts with

A. Conc. $HCl / ZnCl_2$

B. PCl_3

C. Conc . H_2SO_4

D. CH_3COOHH/H^+

Answer: D

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29. An organic compounds 'A' with the molecular formula $C_4H_{10}O$on oxidation with acidified $K_2Cr_2O_7$ gives compounds 'B' with the formula C_3H_6O. Again 'B' on oxidation with acidified $K_2Cr_2O_7$ gives,'C' with the molecular formula $C_2H_4O_2$. IUPAC name of 'A' is

A. a. 1- Butanol

B. b. 2- Butanol

C. c. 2- Methyl-2- propanol

D. d. 2- Methylbutanol -1

Answer: C

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30. When phenyl magnesium bromide reacts with ter- butyl alcohol, which of the following is formed ?

A. Tert- butyl methl ether

B. Benzene

C. Tert-butyl benzene

D. Phenol

Answer: B

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31. $CH_3CH_2CH_2OH \xrightarrow{x} CH_3CH = CH_2,$ The reagent 'X' is

A. $5\ \%\ H_2SO_4 at 50C$

B. $75\ \%\ H_2SO_4 at 100C$

C. $95\ \%\ H_2SO_4 at 170C$

D. $A1_2O_3,\ 170C$

Answer: C

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32. $(CH_3)_3C - OH \xrightarrow{H_2SO_4\,\Delta} (CH_3)_2C = CH_2$,

This reaction takes place through

A. S_N1 mechanism

B. S_N2 mechanism

C. Dehydration

D. Dehydrogenation

Answer: C

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33. The final product in the fermentation of riped grapes in aerobic conditions is

A. Ethanoic acid

B. Ethanal

C. Ethanol

D. Ethane

Answer: A

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34. Denaturation of ethyl alcohol is made by adding

A. methanol only

B. Phyride only

C. methanol and pyridine

D. zinc sulphate

Answer: C

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35. $CH_3CH_2CH = CH - CH_2OH \xrightarrow{PCC} A, Here'A':$

A. $CH_3CH_2COOH + HOOC - COOH$

B. $CH_3CH_2CH = CH - COOH$

C. $CH_3CH_2CH(OH)CH(OH)CHO$

D. $CH_3CH_2CH = CHCHO$

Answer: D

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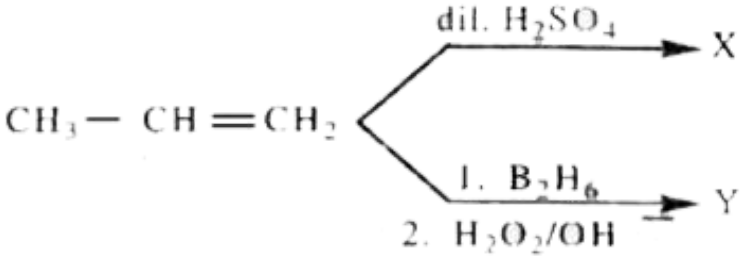
36.



Here, the product X and Y are

A. X $n-$ propyl alcohol Y $n-$ propyl alcohol

B. X $iso-$ propyl alcohol Y $iso-$ propyl alcohol

C. X $n-$ propyl alcohol Y $iso-$ propyl alcohol

D. X $iso-$ propyl alcohol Y $n-$ propyl alcohol

Answer: D

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37. An organic compounds 'X' with the molecular formula C_3H_6O, reacts with CH_3MgBr and then hydrolised to give 'Y' ,Y gives turbidity immediately with Lucas reagent Structural formula of compounds X and Y are :

A. X CH_3CH_2CHO Y $CH_3CH_2CH(OH)CH_3$

B. X CH_3COCH_3 Y $(CH_3)_3COH$

C. X CH_3CH_2CHO Y $(CH_3)_3COH$

D. X CH_3COCH_3 Y $CH_3CH_2CH(OH)CH_3$

Answer: B

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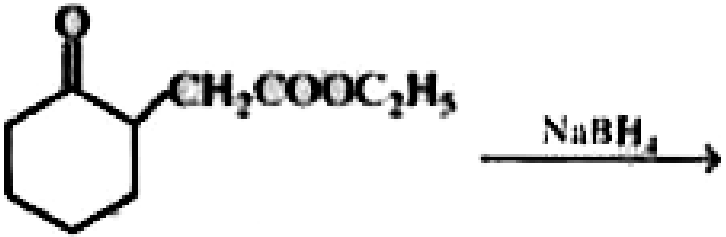
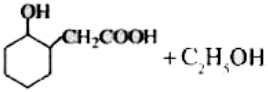
38. 

Product(s) in the above reaction is (are)

A. ` (##AKS_NEO_CAO_CHE_XII_V02_P03_APP_E02_038_O01.png" width="30%">

B. ` (##AKS_NEO_CAO_CHE_XII_V02_P03_APP_E02_038_O02.png" width="30%">

C. ` (##AKS_NEO_CAO_CHE_XII_V02_P03_APP_E02_038_O03.png" width="30%">

D. 

Answer: A

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39. $CH_3 - CH_2 - \underset{\underset{O}{||}}{C} - CHO \xrightarrow{NaBH_4}$

Product (s) in the above reaction is (are)

A. $CH_3CH_2COOH + CO_2$

B. $CH_3CH_2COCH_2OH$

C. $CH_3CH_2CH(OH)CH_2OH$

D. $CH_3CH_2CH(OH)CHO$

Answer: C

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40. Hydration of 3- phenylbut -1- ene with dil , H_2SO_4 mainly gives

A. 3- Phenlbutan -1-ol

B. 3- Phenylbutan -2-ol

C. 2- Phenylbutan -1- ol

D. 2- Phenybutan -2-ol

Answer: D

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41. The bond cleavages during esterification reaction between

$(A) = CH_3COOH$ and $(B)C_2H_5OH$

A. $C - O$ in B and O- H in A

B. $C - O$ in A and $O - H$ in B

C. $C - O$ in A and $O - H$ in A

D. $O - H$ in B and $O - H$ in A

Answer: B

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42. HB reacts fastest with

A. 2- Methylpropan -1- ol

B. 2- Methylpropan -2-ol

C. Propan -2- ol

D. Propan -1- ol

Answer: B

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43. $CH_3CH_2OH \xrightarrow{Conc.\,H_2SO_4,\,413K} C_2H_5OC_2H_5$

It follows which maechanism ?

A. S_N1

B. SN_2

C. E_1

D. E_2

Answer: B

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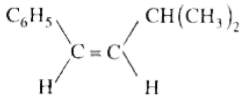
44. The main product of the following reactions is

$C_6H_5CH_2CH(OH)CH(CH_3)_2 \xrightarrow{conc.\,H_2SO_4}$

A. ` (##AKS_NEO_CAO_CHE_XII_V02_P03_APP_E02_044_O01.png" width="30%">

B. ` (##AKS_NEO_CAO_CHE_XII_V02_P03_APP_E02_044_O02.png" width="30%">

C. ` (##AKS_NEO_CAO_CHE_XII_V02_P03_APP_E02_044_O03.png" width="30%">

D. 

Answer: B

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45. Among the following the one that gives positive iodoform test upon reaction with I_2 and NaOH

A. $CH_3CH_2CH(OH)CH_2CH_3$

B. $C_6H_5CH_2CH_2OH$

C. ` (##AKS_NEO_CAO_CHE_XII_V02_P03_APP_E02_045_O03.png" width="30%">

D. $PhCHOHCH_3$

Answer: D

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46. Among the following compounds which can be dehydrated very easily?

A. $CH_3CH_2CH_2CH_2CH_2OH$

B. $CH_3CH_2CH_2\underset{\displaystyle OH}{\underset{|}{C}}HCH_3$

C. $CH_3CH_2\underset{\displaystyle OH}{\underset{|}{\overset{\displaystyle CH_3}{\overset{|}{C}}}}CH_2CH_3$

D. $CH_3CH_2CH\underset{\displaystyle CH_3}{\underset{|}{C}}H_2CH_2OH$

Answer: C

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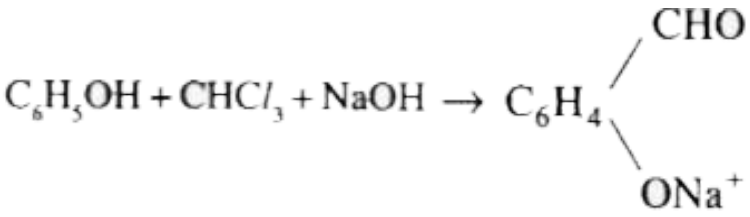
Phenols



1.

The electrophile involved in the above reaction is

A. Dichloro carbene (CCl_2)

B. Trichloro methl anion $\left(\overset{(-)}{C}Cl_3\right)$

C. Formyl cation $\left(C^+HO\right)$

D. Dichloro methyl cation $\left(C^+HCl_2\right)$

Answer: A

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2. The reaction $C_6H_5OH \xrightarrow[\text{Pyridine}]{CH_3COCl} C_6H_6OCOCH_3$ is called

A. Reimer- Tiemann reaction

B. Schotten- Baumann reaction

C. Acetylation

D. Benzoylation

Answer: C

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3. Which of the following is most acidic ?

A. Phenol

B. CH_3CH_2OH

C. Picric acid

D. p-Nitrophenol

Answer: C

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4. The increasing order of boiling points of below mentioned alcohols is

(a) 1,2 - dihydroxy benzene

(b) 1,3- dihydroxy benzene

© 1,4- dihydroxy benzene

(d) hydroxy benzene

A. $a < b < c < d$

B. $a < b < cd < c$

C. $d < a < b < c$

D. $d < b < a < c$

Answer: C

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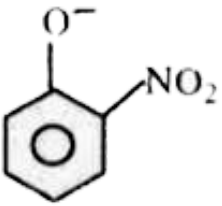
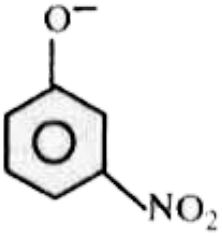
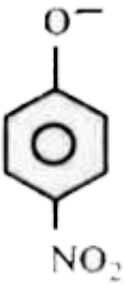
5. The descending order of k_b values of the following compounds is

a) 

b) 

c) 

d) 

A. $d < b < c < a$

B. $a < c < b < d$

C. $b < d < c < a$

D. $a < c < d < b$

Answer: B

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6. Phenols are more acidic than alcohols due to

(a) In phenols,- OH is attached to sp^2 hybridised carbon but in alcohols , -OH is attached to sp^3 hybridised carbon

(b) Phenoxide ion is more stable than alkoxide due to resonance

(c) Phenoxide ion is more stable than phenol

A. only a

B. only b

C. only c

D. a,b, and c

Answer: D

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7. Arrange the following compounds in increasing order of their acid strength:

Propane-1-ol, 2, 4, 6-trinitrophenol, 3-nitrophenol, 3,5-dinitrophenol , phenol, 4-methylphenol.

A. $a < b < c < e < d$

B. $d < e < c < b < a$

C. $a < b < c < d < e$

D. $e < d < c < b < a$

Answer: B

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8. Phenol $\xrightarrow{conc.H_2SO_4} A \xrightarrow{Conc.HNO_3} B$ Here A and B are respectively.

A. P- Hydroxy benzenesulphonic acid, P- nitrophenol

B. 4- Hydroxybenzene -1,3- dislphonic acid, picric acid

C. 4- Hydroxybenzene -1,3 disulphonic acid, 2,4- dinitrophenol

D. 3-Hydroxybenzenesulphonic acid , picric acid

Answer: B

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9. Phenol $\xrightarrow{NaOH} A \xrightarrow[(2)\,H^+]{(i)\,CO_2} B \xrightarrow{(CH_3CO)_2O,\,H^+} C$ Incorrect statement among the following is

A. Preparation of 'B' from phenol is called Kolbe s' reaction.

B. B' is steam volatile

C. C' has a free -OH group if 'B'

D. C' can be used as antiflammatory , analgesic and antipyretic.

Answer: C

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10. Phenol $\xrightarrow{(CH_3CO)_2O,\,H^+} A \xrightarrow{AlCl_3\,.\,\Delta} B + C$ If 'B' is steam volatile, incorrect statement among the following is

A. Second step is called Fries rerrangement

B. First step is called acetylation

C. Boiling points of 'B' is less than that of 'C'

D. C' is 3- Hydroxy acetophenone.

Answer: D

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11. One mole of phenol is warmed with sodium metal . If we assume 100% yield , volume of H_2 gas liberated at S.T.P is

A. $11.2L$

B. $22.4L$

C. $33.6L$

D. $44.8L$

Answer: A

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12. When phenol reacts with which one of the following reagents ,a conjugate diketone will be formed ?

A. $Na_2Cr_2O_7$

B. $conc.\ HNO_3$

C. Zn, Δ

D. $Na, Cr_2O_7 + H_2SO_4$

Answer: D

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13. Benzene $\xrightarrow{\text{oleum}} A \xrightarrow{NaoH} B \xrightarrow[-NaCl]{HCl} C$

Incorrect statement among the following is

A. Aqueous solution of B is acidic

B. A' is Benzene sulphonic acid

C. 0.2% of 'C' can be used as antispectic

D. C' is more acidic than water

Answer: A

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14. Phenol gives characteristic colouration with

A. Iodine solution

B. Bromine water

C. Aqueous $FeCl_3$ solution

D. Ammonium hydroxide

Answer: C

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15. If we use carbon tetrachloride in Reimer- Tiemann reaction in place of chloroform, the product formed is

A. Salicylic acid

B. Salicylaldehyde

C. Cyclohexanol

D. Phenolphthalein

Answer: A

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16. When benzene sulfonic acid and p-nitrophenol are treated with $NaHCO_3$, the gases released respectively are

A. SO_2, NO_2

B. SO_2, NO

C. SO_2, CO_2

D. CO_2, CO_2

Answer: D

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17. Ortho -Nitrophenol is less soluble in water than p-and m- Nitrophenol because

A. o-Nitrophenol is more volatile is steam that those of m- and p-isomers

B. o- Nitrophenol shows Intra molecular H- bonding

C. o- Nitrophenol shows intermolecular H- bonding

D. Melting point of o- Nitrophenol is lower than those of m- and - p -isomers

Answer: B

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18. Phenol is heated with an aqueous solution of Bromine. The major product obtained in the reaction is

A. 2- Bromophenol

B. 3- Bromophenol

C. 4- Bromophenol

D. 2,4,6 -Tribromophenol

Answer: D

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19. From amongst the following alcohols, the one that would react fastest with conc. HCl and anhydrous $ZnCl_2$ is

A. I- Butanol

B. 2- Butanol

C. 2-Methylpropan -2-ol

D. 2- Methylpropanol -1

Answer: C

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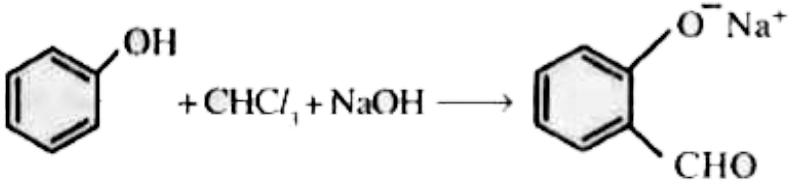
20.



The electrophile involved in the above reaction is

A. dichloromethy 1cation $\left(\overset{\oplus}{C}HCl_2\right)$

B. dichlorocarbene $\langle CCl_2)$

C. trichloromethy 1 anion $\left(\overset{-}{C}C1_3\right)$

D. formy1 cation $\left(\overset{\oplus}{C}HO\right)$

Answer: B

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Ethers

1. Anisole reacts with Br_2 in the presence of CS_2 as solvent to give

A. 2,4,6 -Tribromoanisole

B. 2- Bromoanisole

C. 4- Bromoanisole

D. A mixture of 2- Bromoanisole and 4- Bromoanisole

Answer: D

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2. Anisole with HNO_3 and conc H_2SO_4 gives

A. Phenol

B. Nitrobenzene

C. o and p-nitro anisoles

D. o- nitro anisole

Answer: C

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3. Ethyl phenyl ether on reaction with excess HI yields

A. Ethyl iodide and iodobenzene

B. Ethyl iodide and phenol

C. Ethyl alcohol and phenol

D. Ethyl alcohol and iodobenzene

Answer: B

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4. An ether is more volatile than alcohol having the same molecular formula. This is due to

A. dipolar character of ethers

B. alcohols having resonance structures

C. inter - molecular hydrogen bonding in ethers

D. inter -molecular hydrogen bonding in alcohols

Answer: D

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5. HB react with $CH_2 = CH - OCH_3$ under anhydrous conditions at room temperature to give

A. $H_3C - CHBr - OCH_3$

B. CH_3CHO and CH_3Br

C. $BrCH_2$ and CH_2OH

D. $BrCH_2 - CH_2 - OCH_3$

Answer: A

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6. To prepare tert -butyl ethyl ether by Williamson synthesis, the reactants needed are

A. Sodium ethoxide and sodium tert butoxide

B. Sodium ethoxide and tert -butyl bromide

C. Sodium tert-butoxide and ethy1 bromide

D. Ethyl alcohol and tert -butyl alcohol

Answer: C

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7. The major product obtained when tert -butyl bromide is heated with sodium ethoxide is

A. 2- Methy1 -1 propene

B. Ehene

C. tert -Buty 1 methy1 ether

D. Diethy1 ether

Answer: A

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8. Tert -Butyl methyl ether on heating with HI of one molar concentration gives

A. $CH_3OH + (CH_3)_3Cl$

B. $CH_3I + (CH_3)_3COH$

C. $CH_3I + (CH_3)_3CI$

D. None of these

Answer: A

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9. $A + B \rightarrow CH_3 - OC(CH_3) \xrightarrow{HI} X + Y$

Correct statement among the following is

A. A and B are CH_3ONa and $(CH_3)_3CBr$

B. X and Y are CH_3I and $(CH_3)_3COH$

C. X and Y are CH_3OH and $(CH_3)_3CI$

D. A and B are CH_3OH and $(CH_3)_3COH$

Answer: C

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10. $P + Q \rightarrow$ Anisole $\xrightarrow{HI} R + S$

Correct statement among the following is

A. P and Q are C_6H_5ONa and C_2H_5Cl

B. R and S are C_6H_5OH and CH_3OH

C. R and S are C_6H_5OH and CH_3I

D. P and Q are C_6H_5Cl and CH_3ONa

Answer: C

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11. $CH_3OCH_2CH_3 \xrightarrow{+HI} CH_3I + CH_3CH_2OH$

It follows which mechanism ?

A. S_N1

B. S_N2

C. E_1

D. E_2

Answer: B

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12. Which one of the following reagents will form diethyl ether from ethanol ?

A. $H_2SO_4 at 413K$

B. Cold HI solution

C. $H_2SO_4 at 443K$

D. Dilute H_2SO_4 solution

Answer: A

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13. In the following reaction

$C_2H_5OC_2H_5 + 4[H] \xrightarrow{\text{Red}P + HI} 2X + H_2O$, X is

A. Ethane

B. Ethylene

C. Butane

D. Propane

Answer: A

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14. $(CH_3)_3COCH_3 \xrightarrow{+HI} (CH_3)_3Cl + CH_3OH$

It follows which mechanism ?

A. S_N1

B. S_N2

C. E_1

D. E_2

Answer: A

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Aldehydes And Ketones

1. Which of the following can undergo neither aldol condensation nor iodoform reaction?

A. $CH_3 - CHO$

B. $CH_3 - CO - CH_3$

C. $CH_3 - CO - CH_2 - CH_2 - CH_3$

D. $CH_3 - CCl_2 - CHO$

Answer: D

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2. Diacetone alcohol is obtained when

A. 2 molecules of acetone condense in presence of barium hydroxide

B. 3 molecules of acetone condense in presence of barium hydroxide

C. 3 molecules of acetone polymerise in presence of conc H_2SO_4

D. 3 molecules of acetone condense in presence of conc H_2SO_4

Answer: B

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3. $(I)CH_3OH$

$(II)C_2H_5OH$

$(III)CH_3CH_2CH_2OH$

$(IV)CH_3 - CH(OH)CH_3$

$(V)(CH_3)_3C - OH$

$(VI)CH_3CH(OH)C_2H_5$

$(VII)CH_3COCH_3$

$(VIII) CCl_3COCH_3$

$(IX) CH_3CHO$

$(X) CH_3 - \overset{O}{\overset{||}{C}} - OH$

$(XI) CH_3 - \overset{O}{\overset{||}{C}} - O - C_2H_5$

$(XII) C_2H_5 - CHO$

Which of the above compounds cannot undergo iodoform reaction ?

A. 1. Only $II, IV, VI, VII, VIII, IX$

B. 2. Only I, III, V, X, XI, XII

C. 3. Only X, XI, XII

D. 4. Only I, V, X, XII

Answer: B

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4. Number of σ bonds ,π bonds and lone pairs of electrons present in acetone semicarbazone are

A. $16, 2, 5$

B. $16, 2, 2$

C. $14, 2, 4$

D. $16, 2, 4$

Answer: A

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5. IUPAC name of dehydration product of compound 'X' which is obtained on condensation of two molecules of acetone in dilute NaOH solution is

A. diacetone alcohol

B. mesityl oxide

C. 4- methyl pent -3- en - 2 one

D. 4- hydroxy -4 methyl -2- pentanone

Answer: C

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6. Which of the following participate in aldol condensation

A. Formaldehyde

B. Benzaldehyde

C. Methanol

D. Acetaldehyde

Answer: D

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7. Acetaldehyde and acetone can be identified by

A. Schiff's reagent

B. 2,4 -DNP test

C. Tollen's reagent

D. Lucas test

Answer: B

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8. $A \xrightarrow{HBr} B \xrightarrow{AqKOH}$

$C \xrightarrow{PDC} CH_3COCH_3$

Identify the orgaic compounds A,B and C given in the above sequence.

A. $CH_3CHO, C_2H_2Br_2$ and CH_3COOH

B. $CH_3CH = CH_2, CH_3CHBrCH$ and $\mathbb{C}H_3CH(OH)CH_3$

C. $CH_3CH = CH_2, CH_3CHBrCH_3$ and $CH_3CH(OH)CH_3$

D. $CH_3CH = CH_2, CH_3CHBrCH_3$ and CH_3CHO

Answer: C

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9. Reduction of

can be carried out with

A. Catalytic reduction

B. Na/C_2H_5OH

C. Wolff -Kishner reduction

D. $LiAIH_4$

Answer: C

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10. A carbonyl compound can be prepared by hydration of acetylene. It reacts with ammonia to form (X) and with hydroxylamine to form (Y). It

undergoes Wolff-Kishner reduction to form Z. X, Y and Z are

A. Acetaldimine acetaldoxime and ethane

B. Diacetone amine, acetoxime and propane

C. Acetaldoxime , semicarbazone and propane

D. Aldol, hydrazone and alcohol.

Answer: A

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11. $(CH_3)_2CO \xrightarrow[(HCl)]{NaCN} A \xrightarrow[\Delta]{H_3O^+} B.$

In the above sequence A and B are

A. $(CH_3)_2C(OH)CN, (CH_3)_2C(OH)COOH$

B. $(CH_3)_2C(OH)CN, (CH_3)_2C(OH)_2$

C. $CH_3CHOHCN, (CH_3)_2CHCOOH$

D. $(CH_3)_2C(OH)CN, (CH_3)_2C=O$

Answer: A

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12. Which one of the following is one of the cross end products formed when a mixture of acetone and acetaldehyde is heated after treating with aqueous sodium hydroxide?

A. $(CH_3)_2C = CH - CHO$

B. $(CH_3)C(OH) = CHCOCH_3$

C. $CH_3 - CH = CH - CHO$

D. $(CH_3)_2CH(OH)CH_2CO - CH_3$

Answer: A

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13. $X + RMgX \rightarrow Y \xrightarrow{H_2O.H^+} Z$.

If Z is n-butyl alcohol, 'X' is

A. HCHO

B. CH_3CHO

C. $RCHO$

D. $RCOR$

Answer: A

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14. When acetaldehyde undergoes reaction with Zn-HCl in the presence of Hg, The product obtained is

A. Propane

B. ethane

C. methane

D. butane

Answer: B

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15. 2, 3-dimethyl-2-butene, on reductive ozonolysis gives

A. Acetone

B. Acetaldehyde

C. Butanone

D. Formaldehyde

Answer: A

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16. HCHO with conc. Alkali forms two compounds. The change in oxidation number would be

A. (0 to -2) in both the compounds

B. (0 to +2) in both the compounds

C. (0 to 2) in one compound and (0 to -2) in the second compound

D. all the above are correct

Answer: C

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17. Which of the following compounds would undergo the Cannizaro reaction ?

A. Acetaldehyde

B. Benzaldehyde

C. Propionaldehyde

D. Anisole

Answer: B

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18. Benzaldehyde can be prepared by oxidation of toluene with

A. Acidic $KMnO_4$

B. $K_2Cr_2O_7$

C. CrO_2Cl_2

D. All

Answer: C

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19. Hydrogenation of benzoyl chloride in the presence of Pd and $BaSO_4$ gives

A. Benzyl Alcohol

B. Benzaldehyde

C. Benzoic acid

D. Phenol

Answer: B

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20. Benzaldehyde is obtained from toluene by

A. Rosenmund's reduction

B. Cannizzaro reaction

C. Kolbe's reaction

D. Etard reaction

Answer: D

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21. $C_6H_6 + CO + HCl \xrightarrow{\text{Anhyd.}AlCl_3} X + HCl$ Compound X is

A. $C_6H_5CH_3$

B. $C_6H_5CH_2Cl$

C. C_6H_5CHO

D. C_6H_5COOH

Answer: C

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22. In this reaction

$C_6H_5CH_3 \xrightarrow[CrO_3]{(CH_3CO)_2O} M \xrightarrow[\text{hydrolysis}]{\text{alkaline}} C_6H_5CHO$ acetic anhydride is used

A. As catalyst

B. As an oxidising agent

C. To from a non -oxidizable derivative of benzaldehyde

D. To help the reaction to proceed smoothly

Answer: C

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23. Benzaldehyde undergoes oxidation and reduction in the presence of

A. $NaHCO_3$

B. Concentrated NaOH

C. Na_2CO_3

D. HCl

Answer: B

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24. Reaction of C_6H_5CHO with CH_3NH_2 gives

A. C_6H_5COOH

B. $C_6H_5 - N = NCl + 2H_2O$

C. $C_6H_5 - CH = N - CH_3$

D. $C_6H_5NH_2$

Answer: C

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25. Schiff's bases are formed when aniline reacts with

A. Aromatic aldehydes

B. Aryl ketones

C. Arylhalides

D. Aryl alcohols

Answer: A

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26. CH_3CHO and C_6H_5CHO can be distinguished by

A. Baeyer's reagent

B. Tollen's reagent

C. Schiff's reagent

D. $I_2 + NaOH$

Answer: D

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27. Which does not react with Fehling's solution ?

A. Acetaldehyde

B. Benzaldehyde

C. Glucose

D. Formic acid

Answer: B

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28. A compound reduces Tollen's reagent but does not reduce Fehling's or Benedict solution. It is

A. Glucose

B. Benzaldehyde

C. Acetophenone

D. Acetaldehyde

Answer: B

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29. Benzyl alcohol is obtained from benzaldehyde by

A. Fitting reaction

B. Cannizzaro reaction

C. Kolbe's reaction

D. Wurtz reactions

Answer: B

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30. 1-Phenylethanol can be prepared by reaction of benzaldehyde with

A. Methy1 bromide

B. Ethy1 jodide and magnesium

C. Methy1 bromide and aluminium bromide

D. Methy1 iodide and magnesium

Answer: D

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31. A substance A containing three carbon atoms gives white crystalline precipitate with sodium bisulphite solution. But does not guve red precipitate with Fehling solution. A on treatment with $NH_2 - NH_2 / KOH$ will yield

A. Propene

B. Propane

C. Cycloproapane

D. Propionic acid

Answer: B

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32. A certain compound Y has a formula C_3H_6O. It combines with hydroxylamine to form two compounds which are geometrical isomers of each other. Y is

A. CH_3CHO

B. CH_3CH_2CHO

C. CH_3COCH_3

D. $CH_2 = CHCH_2OH$

Answer: B

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33. Which of the following compound will give yellow precipitate with I_2 / Na_2CO_3(aq) but does not respond to Cannizzaro reaction ?

A. $(C_2H_5)_2CO$

B. CH_3CHO

C. CH_2O

D. $C_2H_5CH_2OH$

Answer: B

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34. Vinyl alcohol and ethanal are

A. Metamers

B. Tautomers

C. Position isomers

D. Chain isomers

Answer: B

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35. $C_3H_8O \xrightarrow[K_2Cr_2O_7 / H^+]{(O)} C_3H_6O \xrightarrow{I_2 / NaOH} CHI_3$ In this sequence, the starting compound is

A. 1- propanol

B. Propanal

C. 2- propanol

D. Ethy1 methy1 ether

Answer: C

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36. Which among the following gives positive iodoform test as well as positive Fehling test ?

A. Propanal

B. Ethanal

C. Propanone

D. Acetophenone

Answer: B

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37. The number of isomeric ketones with formula $C_6H_{12}O$ is

A. Six

B. Two

C. Five

D. Four

Answer: A

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38. Cannizzaro reaction involves

A. Oxidation of aldehydes

B. Oxidation as well reduction of aldedhyde molecule

C. Reduction of aldehyde molecule

D. Rearrangement in aldehyde molecule

Answer: B

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39. Which of the following aldehyde contains $\alpha - C$ atom but does not have any $\alpha - H$ atom ?

A. Propionaldehyde

B. Bezaldehyde

C. Isobutyraldehyde

D. Formaldehyde

Answer: B

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40. Which of the following compound will not undergo Cannizzaro reaction ?

A. Benzaledhyde

B. 2,2 -Dimethy1 propanal

C. Formaldehyde

D. Phenylethanal

Answer: D

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41. The reagent used to bring about the transfermation of but-2-ene to acetaldehyde

A. Pyridinumchlorochromate

B. O_3, H_2O and Zn dust

C. Chromium trioxide

D. Acidified dichromate

Answer: B

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42. A compound X has molecular formula C_2Cl_3OH. It reduces Fehling solution and on oxidation ti gives monocarboxylic acid B. X is

A. Chloromethane

B. Chloroform

C. Chloroacetic acid

D. Chloral

Answer: D

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43. In which of the following process acetone is one of the final products ?

A. Ozonolysis of ethyne

B. Oxidation of 2- butene with $KMnO_4 / H_2SO_4$

C. Oxidation followed by hydrolysis of cumene

D. Dehydrogenation of 1- propanal

Answer: C

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44. Which of the following will show disproportionation when treated with 50% aqueous NaOH ?

A. Benzyl alcohol

B. Ethanol

C. Phenyl ethanol

D. m- Nitrobenzaldehyde

Answer: D

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45. Which reagent is suitable for one step preparation of n-pentane from 2-pentanone ?

A. $Zn - Hg / HCl2) LiA1H_4$

B. $K_2Cr_2O_7 / H_2SO_4$

C. N/A

D. One step conversion is not possible

Answer: A

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46. Which of the following can provides distinction between two functional isomers of C_3H_6O ?

A. $NaHSO_3$

B. HCN

C. $AgNO_3$

D. $\left[Ag(NH_3)_2^+ OH^-\right.$

Answer: D

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47. 2-Pentanone and 3-methylbutan-2-one are

A. Optical isomers

B. Geometrical isomers

C. Chain isomers

D. Tautomers

Answer: C

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48. An alkene , C_7H_{14} on reductive ozonolysis gave propanal and a ketone. The probable formula of ketone is

A. Acetone

B. Ethyl methylketone

C. 2- Pentanone

D. 3- Pentanone

Answer: B

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49. Which ketone will form 3- ethylpentan -3-ol on treatment with ethy1 magnesium bromide ?

A. Acetone

B. Ethylmethyl ketone

C. Acetophenone

D. Diethyl ketone

Answer: D

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50. Acetone $\xrightarrow{\text{ethyleneglycol}} X.$

The product X in this reaction is

A. Mesitylene

B. Acetylene

C. Ketol

D. Acetol

Answer: C

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51. Treatement of propionaldehyde with dilute NaOH solution gives

A. $CH_3CH_2COOCH_2CH_2CH_3$

B. $CH_3CH_2CH(OH)CH(CH_3)CHO$

C. $CH_3CH_2CH(OH)CH_2CH_2CHO$

D. $CH_3CH_2COCH_2CHO$

Answer: B

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52. Which of the following conversion can be brought about under Wolff-Kishner reduction ?

A. Benzaldehyde to benzyl alcohol

B. Cyclohexanol to cyclohexane

C. Cyclohezanone to cyclohexanol

D. Benzophenoen to dipheny1 methane

Answer: D

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53. $C_6H_5CHO + HCN \rightarrow C_6H_5CH(CN)OH$. The product would be

A. Diastereomer

B. Optically active

C. A meso compound

D. Ethyl formate

Answer: B

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54. When acetone undergoes reduction in presence of Zn -HCl / Hg, it is known as

A. Wolf Kishner's reduction

B. Rosenmund's reduction

C. Cleammanson's reaction

D. Gatterman's reaction

Answer: C

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55. $C_6H_5CH_3 \rightarrow C_6H_5CHO$. Which one of the following reagents are not suitable for the conversion ?

A. treating with alkaline $KMnO_4$ and heating

B. reaction with CrO_2Cl_2 followed by hydrodysis.

C. reaction with $CrO_3 \text{in} (CH_3CO)_2O$ followed by hydrosis.

D. both (2) and (3)

Answer: A

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56. $R_1 - COCl + R_2Cd \rightarrow CdCl + X$

The organic compound 'X' is

A. a ketone

B. an aldehyde

C. an alcohol

D. a phenol

Answer: A

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57. Cyanohydrin of which compound on hydrolysis will give lactic acid?

A. C_6H_5CHO

B. $HCHO$

C. CH_3CHO

D. $CH_3 - CH_2 - CHO$

Answer: C

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58. Which of the following products is formed when benzaldehyde is treated with CH_3MgBr and the addition product so obtained is subjected to acid hydrolysis?

A. A secondary alcohol

B. A primary alcohol

C. Phenol

D. Tert - butyl alcohol

Answer: A

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59. Which of the following reacts with NaOH to produce an acid and alcohol ?

A. $HCHO$

B. CH_3COOH

C. CH_3CH_2COOH

D. C_6H_5COOH

Answer: A

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60. The increasing order of the rate of HCN addition to compounds I to IV is

(I) HCHO

(II) CH_3COCH_3

$(III) phCOCH_3$

$(IV) phCOph$

A. $III < IV < II < I$

B. $I < II < III < IV$

C. $IV < II < III < I$

D. $IV < III < II < I$

Answer: D

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61. Which one of following undergoes reaction with 50% sodium hydroxide solution to give the corresponding alcohol and acid ?

A. Phenol

B. Benzoic acid

C. Butanal

D. Benzaldehyde

Answer: D

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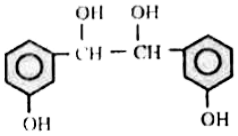
62. When m- chlorobenzaldehyde is treated with 50% KOH solution , the product (s) obtained is (are)

A. ` (##AKS_NEO_CAO_CHE_XII_V02_P03_APP_E05_062_O01.png" width="30%">

B. ` (##AKS_NEO_CAO_CHE_XII_V02_P03_APP_E05_062_O02.png" width="30%">

C. ` (##AKS_NEO_CAO_CHE_XII_V02_P03_APP_E05_062_O03.png"

width="30%">

D. 

Answer: B

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63. Which of the following does not undergo disproportionation with conc.KOH

A. CH_3CHO

B. $HCHO$

C. C_6H_5CHO

D. Chloral

Answer: A

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64. $C_6H_6 \xrightarrow[Alcl_3]{Co.HCl} A \xrightarrow{Conc.KOH} B + C$

Correct statement among the following is

A. First step is called Kolbe's reaction

B. B and C are benzaldehyde and benzyl alcohol.

C. Second step is called aldol condensation

D. A is benzene carbaldehyde

Answer: D

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65. $CH_3CHO + CH_3CH_2CHO \xrightarrow{NaOH.\Delta}$

Which one of the following compounds is not the product in the above reaction?

A. $CH_3CH = CHCHO$

B. $CH_3CH_2CH = CH\mathbb{C}H_2CHO$

C. $CH_3CH = C(CH_3)CHO$

D. $CH_3CH_2CH = CHCHO$

Answer: B

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66. $C_6H_5CHO + C_6H_5COCH_3 \xrightarrow{OH^-, 293K} X,$

IUPAC name of cross condensation product X is

A. Benzalacetophenone

B. 1,3- diphenylpropanone-1

C. 1,3 - diphyenylprop -2-en -1- one

D. 1,3 -diphenylprop -1- en-3-one

Answer: C

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67. One mole of acetal on complete hydrolysis gives

A. mole of aldyhyde,1 mole of alcohol

B. 1 mole of aldehyde ,2 moles of alcohol

C. 2 moles of aldehyde ,1 mole of alcohol

D. 2 moles of aldehyde and 2 moles of alcohol

Answer: B

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68. In Gatterman -Koch reaction , benzene is converted to benzaldehyde. The set of chemicals used for the convertion

A. CO, HCl, anhydrous CuCl

B. $CrO_3(CH_3CO)_2)$

C. C_6H_5MgBr, $C_2H_5OC_2H_5$

D. CO_2, HCl, anhydrous $AlCl_3$

Answer: A

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Carboxylic Acids

1. Which of the following is used as acetylating agent

A. aceticanhydride

B. glacial acetic acid

C. ethyl acetate

D. anhydrous sodiumacetate

Answer: A

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2. Which of the following is used as acetylating agent

A. glacial acetic acid

B. ethyl acetate

C. acetic anhydride

D. anhydrous sodium acetate

Answer: C

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3. The organic compounds A and B react with sodium metal and release H_2 gas. A and B react together to give ethyl acetate. Then A and B are

A. $HCOOH$ and C_2H_5OH

B. C_2H_5OH and CH_3COOH

C. CH_3COOH and CH_3OH

D. CH_3COOH and $HCOOH$

Answer: B

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4. Heating a mixture of ethyl alcohol acetic acid in presence of conc. H_2SO_4 produces a fruity smelling compounds A . Then A is

A. Ether

B. Ester

C. Aldehyde

D. Ketone

Answer: B

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5. Hydrolysis of acetamide produces

A. Acetic acid

B. Acetaldehyde

C. Methyl amine

D. Formic acid

Answer: A

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6. Cyanohydrin of which of the following forms lactic acid?

A. HCHO

B. CH_3COCH_3

C. CH_3CHO

D. CH_3CH_2CHO

Answer: C

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7. $CaC_2 \xrightarrow{H_2O} A + B.\ A \xrightarrow{HgSO_4 + H_2SO_4} C.$

$C \xrightarrow{K_2Cr_2O_7 + H_2SO_4} D$

Here A, B , C and D are respectively .

A. $CH \equiv CH, Ca(OH)_2, CH_3CHO$ and CH_3COOH

B. $Ca(OH)_2. CH \equiv , CH_3CHO$ and $(CH_3COO)_2Ca$

C. $CH \equiv CH, Ca(OH)_2, CH_3CHO$ and $(CH_3COO)_2Ca$

D. $CH \equiv CH, CH_3CHO, Ca(OH)_2$ and $(CH_3COO)_2Ca$

Answer: A

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8. Identify Z in the following sequence of reactions

Ethanol

$$\xrightarrow{PBr_3} X \xrightarrow{Alc.KOH} Y \xrightarrow[(ii)\,H_2O,\text{heat}]{(i)\,Conc,H_2SO_4} ZCH_3COONH_4 \xrightarrow{\Delta} X \xrightarrow{P_2O_5} Y \xrightarrow{H_2O/H^+} Z$$

A. $CH_3CH_2CONH_2$

B. CH_3CN

C. $(CH_3CO)_2O$

D. CH_3COOH

Answer: D

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9. $(CH_3)_2CO \xrightarrow[(HCl)]{NaCN} A \xrightarrow[\Delta]{H_3O^+} B.$

In the above sequence A and B are

A. $(CH_3)_2C(OH)CN$, $(CH_3)_2C(OH)COOH$

B. $(CH_3)_2C(OH)CN$, $(CH_3)_2C(OH)_2$

C. $(CH_3)_2C(IH)CN, (CH_3)_2CHCOOH$

D. $(CH_3)_2C(OH)CN, (CH_3)C=0$

Answer: A

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10. Which reagent will bring about the convesion of carboxylic acids into esters?

A. C_2H_5OH

B. $DryHCl/C_2H_5OH$

C. $LiAIH_4$

D. $Al(OC_2H_5)_3$

Answer: B

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11. $R-COCH_3 \xrightarrow{X_2/OH^-} CHX_3 + \text{Carboxylate ion} \xrightarrow{H^+}$

Carboxylic acid . In the above sequence, the carboxylic acid obtained is

A. CH_3COOH

B. $HCOOH$

C. $RCOOH$

D. RCH_2COOH

Answer: C

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12. The reaction of acetaldehyde with HCN followed by hydrolysis gives a product which exhibits?

A. Metamerism

B. Tautomerism

C. Enantiomerism

D. Geometrical isomerism

Answer: C

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13. The acid formed when propyl magnesium bromide is treated with carbondioxide and followed by hydrolysis is

A. C_3H_7COOH

B. C_2H_5COOH

C. $CH_3COOC_2H_5$

D. $C_2H_5COOCH_3$

Answer: A

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14. What are A and B in the following reactions?

$(I) CH_3CO_2H \xrightarrow[Redp]{HI} A$

$(II) 2CH_3CO_2H \xrightarrow{P_4O_{10}} B$

A. A CH_3COCH_3 B $(CH_3CO)_2O$

B. A C_2H_6 B CH_3COCH_3

C. A C_2H_6 B $(CH_3CO)_2O$

D. A $(CH_3CO)_2$ B C_2H_6

Answer: C

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15. Which of the following reactions of acetic acid involves C - OH bond ?

(I) Action of Na

(II) Formation of acid chloride

(III) Action with $NaHCO_3$

(IV) Formation of an ester

A. I, II

B. II, III

C. III, IV

D. II, IV

Answer: D

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16. In which of the following compounds carbon oxygen bond length is shorter than others

A. CH_3COO^-

B. CH_3COOH

C. $CH_3COOC_2H_5$

D. CH_3COCl

Answer: A

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17. Propanoic acid is slightly weaker than acetic acid because

A. methyl group is electron with drawing

B. $+I$ effect of C_2H_5 is more than $-CH_3$

C. acetic acid is stronger than propanoic acid

D. propanoic acis has three carbon atoms

Answer: B

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18. When compound X is oxidised by acidified potassium dichromate, compound Y is formed. Compound Y on reduction with $LiAIH_4$gives X.X and Y respectively are

A. C_2H_5OH, CH_3COOH

B. CH_3COCH_3, CH_3COOH

C. $C_2H_5OH, CH_3, COCH_3$

D. CH_3, CHO, CH_3COOH

Answer: A

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19. The correct acidic strength order of the following compounds is

$(a)CH_3COOH$

$(b)H_2CO_5$

$©C_2H_5OH$

$(d)C_6H_5OH$

(e) H_2O

(f)C_2H_2

A. $a > b > d > e > c > f$

B. $a > d > c > b > e > f$

C. $a > b > c > d > e > f$

D. $a > b > d > c > e > f$

Answer: A

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20. Toluene

$$\xrightarrow[KMnO_4\{+KOH)}{\Delta} A \xrightarrow{H_3O^+} C. \quad \text{n- propyl benzene} \quad \xrightarrow[\Delta]{KMnO_4+KOH} P \xrightarrow{H_3O^+} Q$$

A. A and P are different but C and Q are same

B. A and P are different and C and Q are different

C. A and P are same and C and Q are same

D. C and Q are benzaldehyde

Answer: C

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21. $C_6H_5Br + Mg \xrightarrow{\text{dry ether}} A \xrightarrow{CO_2} B \xrightarrow{H_3O^+} C.$

IUPAC name of C is

A. Benzene carboxylic acid

B. Benzene carbaldehyde

C. Pehylomethanol

D. Pheny ethanoic acid

Answer: A

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22. Identify C in the following sequence of reactions:

$CH_3COONH_4 \rightarrow \overset{\Delta}{A} \xrightarrow{P_2O_5} B \xrightarrow{H_3O^+} C$

A. $CH_3CH_2CONH_2$

B. CH_3CN

C. $(CH_3CO)_2O$

D. CH_3COOH

Answer: D

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23. What are A, B and C in the following reaction?

$$CH_3CO_2Na \xrightarrow{\text{soda lime / } \Delta} A$$

$$CH_3CO_2H \xrightarrow{LiAlH_4} B,$$

$$CH_3CO_2Na \xrightarrow{\text{Kolbe' selectrolysis}} C$$

A. $\begin{matrix} A & B & C \\ C_2H_6 & C_2H_5OH & CH_4 \end{matrix}$

B. $\begin{matrix} A & B & C \\ CH_4 & C_2H_5OH & C_2H_6 \end{matrix}$

C. $\begin{matrix} A & B & C \\ C_2H_6 & CH_3COCH_3 & C_3H_8 \end{matrix}$

D. $\begin{matrix} A & B & C \\ (CH_3CO)_2O & C_2H_6 & C_2H_6 \end{matrix}$

Answer: B

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24. Identify A,B and C in the following reactions

$$CH_3Cl \xrightarrow{KCN} A \xrightarrow[H_3O^{\oplus}]{\text{hydrolysis}} B \xrightarrow[\Delta]{C_2H_5OH\,/\,H^+} C$$

	A	B	C
A.	CH_3NC	CH_3NHCH_3	$CH_3N(CH_3)C_2H_5$
B.	CH_3CN	CH_3CONH_2	CH_3CO_2H
C.	CH_3CN	CH_3CO_2H	$CH_3CO_2C_2H_5$
D.	CH_3CN	CH_3CO_2H	$(CH_3CO)_2O$

Answer: C

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25. Consider the following reaction

$$\text{Phenol} \xrightarrow{\text{zn dust}} X \xrightarrow[\text{anhyd. } AlCl_3]{CH_3Cl} (Y) \xrightarrow[KMnO_4]{\text{alkaline}} Z$$

The product Z is

A. Toluene

B. Benzene

C. Benzoic acid

D. Benzaldehyde

Answer: C

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26. The major product of nitration of benzoic acid is

A. 3- Nitro benzoic acid

B. 4- Nitrobenzoic acid

C. 2- Nitro benzoic acid

D. 2,4- Dinitro benzoic acid

Answer: A

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27. Which of the following compounds does not have a carboxyl group ?

A. Methanoic acid

B. Ethanoic acid

C. Picric acid

D. Benzoic acid

Answer: C

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28. Which among the following does not give a silver mirror test with Tollen's reagent?

A. Ethanal

B. Methanoic acid

C. Acetone

D. Propanal

Answer: C

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29. Chlorination of toluene in presence of light and heat followed by treatment with aqueous NAOH gives

A. o- Cresol

B. p- Cresol

C. 2,4- Dihydroxytoluene

D. Benzoic acid

Answer: D

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30. When $CH_2 = CH - COOH$ is reduced with $LiAlH_4$ The compound obtained will be

A. $CH_2 = CH - CH_2 - OH$

B. $CH_3 - CH_2 - CH_2OH$

C. $CH_3 - CH_2 - CHO$

D. $CH_3 - CH_2 - COOH$

Answer: A

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31. In the following reaction X and Y respectively

$$CH_3COOH + NH_3 \rightarrow X \xrightarrow[\Delta]{} Y + H_2O$$

A. CH_3COONH_2, CH_4

B. CH_3COONH_4, CH_3CONH_2

C. CH_3CONH_2, CH_3COOH

D. CH_3NH_2, CH_3CONH_2

Answer: B

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32. Acetic anhydride may be prepared by the reaction of acetic acid with

A. Soda lime

B. $LiAIH/H_4$

C. P_2O_5

D. Na

Answer: C

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33. A fruity smell is produced by the reaction of C_2H_5OH with

A. PCl_5

B. CH_3COCH_3

C. CH_3COOH

D. $NaOH$

Answer: C

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34. Consider an esterification of isotopically labelled carboxylic acid :

$$CH_3 - \overset{O}{\overset{||}{C}} - \overset{18}{O}H + C_2H_5OH \xrightarrow{H^+} (A) \text{ and } (B)$$

Compounds (A) and (B) respectively are:

A. $CH_3 - \overset{O}{\overset{||}{C}} - O\overset{18}{C}_2H_5, H_2O$

B. $CH_3 - \overset{O}{\overset{||}{C}} - OC_2H_5, H_2O^{18}$

C. $CH_3 - \overset{O}{\overset{||}{C}} - OC_2H_5, H_2O$

D. $CH_3 - \overset{O}{\overset{||}{C}} - \overset{18}{O}C_2H_5, H_2O^{18}$

Answer: B

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35. In the series of reaction $CH_3COOH \xrightarrow{NH_3} A \xrightarrow{\Delta} B \xrightarrow{P_2O_3} C$ the product C is :

A. CH_4

B. CH_3OH

C. acetonitrile

D. ammonium acetate

Answer:

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36. Hoffmann bromamide or hypobromite reactions is given by

A. Amines

B. Ester

C. Alcohols

D. Amides

Answer: D

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37. Among the given compounds, the most susceptible to nucleophilic attack at the carbonyl group is

A. CH_3COCl

B. CH_3CHO

C. CH_3COOCH_3

D. $CH_3COOCOCH_3$

Answer: A

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38. Acetamide produces primary amine with

A. NaOH

B. HCl

C. $NaOH / Br_2$

D. HgO

Answer: C

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Amines And Diazonium Salts

1. Aniline is not the major product in o0ne of the following reacvtions, identify that reactions.

A. $C_6H_5OH + CH_3 \xrightarrow[300^\circ C]{ZnCl_2}$

B. $C_6H_5NO_2 + Zn \text{ powder} \xrightarrow{\text{aicoholic}KOH}$

C. $C_6H_5Cl + NH_3 \xrightarrow[Cu_2O \text{ high pressure}]{200^\circ}$

D. $C_6H_5NO_2 + Fe + H_2O \xrightarrow{HCl}$

Answer: B

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2. Which of the following is obtained in a carbyl amine reaction ?

A. $C_6H_5NH_2$

B. $COCl_2$

C. C_6H_5CN

D. C_6H_5NC

Answer: D

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3. Most basic among the following is

A. Benzyl amine

B. Aniline

C. Acetanilide

D. p-nitro aniline

Answer: A

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4. In- correct statement about aniline is

A. It is less basic than ethyl amine

B. It is steam volatile

C. On reaction with Na, It gives H_2

D. It is highly soluble in water

Answer: D

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5. On reduction , primary amine is formed by

A. 1- nitroethane

B. Ethylnitrite

C. Azobenzene

D. Ethylcarbylamine

Answer: A

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6. Carbylamine reaction is used for detection of

A. Methanamine

B. Nitromethane

C. Acetamide

D. Trimethylamine

Answer: A

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7. Give the sequence of reactions to convert benzene into p-hydroxyacetophenone.

A. Nitration followed by treatment with Cl_2 in presence of light

B. Nitration followed by treatment with $Cl_2 / A / Cl_3$

C. Chlorination with $Cl_2 / A / Cl_3$ followed by nitration.

D. Chlorination with $Cl_2 / h\delta$ followed by nitration.

Answer: C

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8. The descending order fo boiling points of the following compounds is

(a) 1- Butanamine

(b) N- Ethylethanamine

© N,N-Dimethyl ethanamine

© n-Butyl alcohol

(e) iso Pentane

A. $d > a > b > c > a$

B. $d > c > b > a > e$

C. $a > d > b > c > e$

D. $a > b > c > d > e$

Answer: A

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9. In gaseous state , the correct basic strength among the following is

A. $(C_2H_5)_3N > (C_2H_5)_2NH > C_2H_5NH_2 > NH_3$

B. $(C_2H_5)_2NH > (C_2H_5)_3N > C_2H_5NH_2 > NH_3$

C. $(C_2H_5)_2NH > C_2H_5NH_2 > (C_2H_5)_3N > NH_3$

D. $(C_2H_5)_3N > C_2H_5NH_2 > (C_2H_5)_2NH > NH_2$

Answer: A

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10. An organic compounds 'X' with the molecular formula $C_4H_{11}N$ reacts with $C_6H_5SO_2Cl$ and forms the compound 'Y' .If 'Y' is soluble in alkali ,"X' may be

A. N-Methyl propanamine

B. N,N -Dimethyl ethanamine

C. 1- Pentanamine

D. Sec-buty 1 amine

Answer: D

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11. $(CH_3)_2NH \xrightarrow{KMnO_4} A$, $(CH_3)_2NH \xrightarrow{H_2SO_4} B$ Here A and B are

A. Tetramethyl hydrazine, dimethyl hydroxyl amine

B. Dimethyl hydroxyl amine , tetramethyl hydrazine

C. Tetramethylhydrazine ,tetramethyl hydrazine

D. Dimethyldroxyl amine ,dimethyl hydroxyl amine

Answer: A

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12. A and B are the compounds with the molecular formula C_3H_9N. These are oxidised by $KMnO_4$ and subjected to hydrolysis. If A gives propanal and B gives propanone , A and B are respectively.

A. 1 -propanamine ,2- propanamine

B. N-methyl ethanamine ,2- propanamine

C. Isopropyl amine ,N -methyl ethanamine

D. N-methyl ethanamine ,trimethyl amine

Answer: A

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13. An organic compounds 'X' gives foul odour on heating with $CHCl_3$ and alc. KOH. Correct statement (s) among the following is (are)

(a) 'X' reacts with $C_6H_5SO_2Cl$ give a compound which is insoluble in alkali

(b) 'X' on reaction with CS_2 followed by treatment with $HgCl_2$ gives a mustard oil smell compound

(c) 'X' on oxidation with $KMnO_4$ followed by hydrolysis gives a carbonyl compound

A. a,b and c are correct

B. b and c are correct

C. only a and b are correct

D. only b is correct

Answer: B

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14. $R - NC + HgO \rightarrow Hg + X$

Here, the compound X is

A. $R - ONC$

B. R- CON

C. R -CNO

D. R- NCO

Answer: D

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15. Which one of the following is water insoluble and stable at room temperature?

A. $C_6H_5N_2Cl$

B. $C_6H_5N_2HSO_4$

C. $C_6H_5N_2BF_4$

D. $C_6H_5N_2Br$

Answer: C

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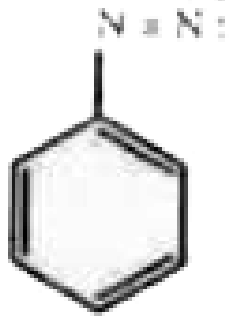
16. Among the following incorrect resonance structure of benzene diazonium ion is

A. 

B. 

C. 

D. 

Answer: D

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17. $C_6H_5N_2Cl + C_6H_5OH \xrightarrow{OH^-} X$

Correct statement among the following

A. X' is an yellow dye

B. The reaction is electrophilic substitution in $C_6H_5N_2Cl$

C. The reaction is electrophilic substution is phenol

D. The reaction is nucleophilic substitution in phenol

Answer: C

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18. $C_6H_5N_2Cl + X + H_2O \rightarrow C_6H_6 + N_2 + Y + HCl.$ Here X and Y are respectively.

A. H_3PO_3, H_3PO_4

B. H_3PO_2, H_3PO_3

C. H_3PO_2, H_3PO_4

D. H_3PO_3, H_3PO_2

Answer: B

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19. $(I) C_6H_5N_2Cl \xrightarrow{CuCl/HCl} C_6H_5Cl + N_2$

$(II) C_6H_5N_2Cl \xrightarrow{Cu/HCl} C_6H_5Cl + N_2 + CuCl$

Incorrect statement among the following is

A. Reaction 'I' is sandmeyers reaction

B. Reaction 'II' Is Gattermann reaction

C. Yield of chlorobenzene is more in reaction 'II'

D. Yied of chlorobenzene is more in reaction I

Answer: C

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20. Benzamide cam be converted into aniline by the action of

A. Br_2 / CCl_4

B. Br_2 / water

C. Br_2 / KOH

D. $Br_2 / \text{red P}$

Answer: C

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21. The process that does not yield an amine is

A. Action of ammonia on Rx

B. Reduction of aldoxime with Na/alcohol

C. Acid hydrolysis of alkyl cyanide

D. Reduction of amide with LAH

Answer: C

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22. Among different aliphatic amines correct order of basic strengths in vapour state is

A. $3^\circ > 2^\circ > 1^\circ$

B. $1^\circ > 2^\circ > 3^\circ$

C. $2^\circ > 1^\circ > 3^\circ$

D. $3^\circ > 1^\circ > 2^\circ$

Answer: A

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23. Conversion of a primary amide into a primary amine is called

A. Gabriel's pthalimide reaction

B. Hoffmann bromamide reaction

C. Carbyl amine reaction

D. Hinsberg's reaction

Answer: B

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24. Ethanamine can be obtained from methyl iodide by the action of alc. KCN followed by

A. Hydrolysis

B. Oxidation

C. Reduction

D. Action of NH_3 / heat

Answer: C

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25. The following amide does not undergo Hoffmann's degradation

A. Propionamide

B. N-methyl butanamide

C. Butanamide

D. N,N-dimethyl butanamide

Answer: D

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26. Incorrect statement among the following is

I) $LiAlH_4$ can reduce an amide into amine without change in the nimber of carbon atoms.

II) A primary amide can be reduced to a primary amine by Br_2/KOH with same number of carbon atoms.

III) A primary amide can be reduced to a primary amine by $LiAlH_4$ with (n - 1) carbon atoms .

IV) Hoffmann's bromamide reaction is useful to prepare aniline from benzamide .

A. II only

B. I only

C. III only IV

D. II and III

Answer: D

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27. N,N- dimethyl ethanamide on reduction with $LiAIH_4$ gives

A. N- methylethanamine

B. N,N -dimethylethanamine

C. Ethanamine

D. Trimethyl amine

Answer: B

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28. Most reactive towards electrophillic substitution is

A. Aniline hydrochloride

B. Aniline

C. Nitro benzene

D. N- acetyl aniline

Answer: B

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29. On reduction , primary amine is formed by

A. Nitroethane

B. Ethylnitrite

C. Azobenzene

D. Ethylcarbylamine

Answer: A

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30. Butanone oxime on reduction with Na / C_2H_5OH gives

A. 3° amine

B. 1° amine

C. 2° amine

D. 1° amine

Answer: B

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31. Which of the following groups will increase basic strength of aniline ?

A. $-NO_2$ in ortho or para

B. $-CHO$ in ortho or para

C. $-SO_3H$ in ortho or para

D. $-OH$ in ortho or para

Answer: D

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32. Aniline gives meta derivative as major product with

A. $CH_3COCl/\text{pyridine}$

B. $HNO_3 + H_2SO_4$

C. Br_2 / water

D. CH_3Cl / pyridine

Answer: B

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33. Bromination of aniline in acid medium results -------- as major product

A. $2, 4, 6 -$ tri bromo aniline

B. 3- bromo aniline

C. 2- bromo aniline

D. 4- bromo aniline

Answer: B

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34. Ethyl amine can be distingished from aniline by

A. Tollens's regent

B. Schiff's reagent

C. Azodye test

D. Carbylamine test

Answer: C

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35. Which of the following on Hoffmann's bromamide reaction gives alkanamine?

A. RCH_2NH_2

B. $RCONHR'$

C. $RCONH_2$

D. $RCOONH_4$

Answer: C

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36. A mixture of three amines A, B and C is treated with benzene sulphonyl chloride and filtered. B is obtained in the filterate. The mixture containing A and C is treated with KOH so that a becomes soluble while C does not .Now A,B and C are

A. Aliphatic primary , secondary and tertiary

B. Aliphatic secondary , tertiary and primary

C. Aliphatic primary , tertiary and secondary

D. Aliphatic tertiary , secondary and primary

Answer: C

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37. Match the following

$Set A$	$Set B$
acetanilde	acidic
benzonitrile	basic
trimethyl amine	neutral
phenol	–

A.
1	2	3	4
C	C	B	A

B.
1	2	3	4
B	C	C	A

C.
1	2	3	4
C	B	B	C

D.
1	2	3	4
A	A	C	B

Answer: A

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38. Dye test is used to distinguish

A. Ethanamine and methanamine

B. Methanamine and propanamine -I

C. Benzenamine and ethanamine

D. Urea and acetanilide

Answer: C

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39. Aniline is soluble in

A. more basic than ammonia

B. more basic than p- amino phenol

C. more basic than p-nitro aniline

D. as basic as methyl amine

Answer: C

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40. Acetanilde on nitration followed by hydrolysis yields ----as main product.

A. 4-nitro aniline

B. 2,4,6 - trinitro aniline

C. 2-nitro aniline

D. 4- nitro aniline

Answer: A

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41. Among the following the strongest base is

A. aniline

B. P-nitro aniline

C. m- nitro aniline

D. benzyl amine

Answer: D

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42. Phenyl isocyanides are prepared from which of the following reaction?

A. Rosenmund's reaction

B. Carbylamine reaction

C. Reimer-Tiemann reaction

D. Wurtz reactions

Answer: B

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43. Gabriel synthesis is used for the preparation of

A. Primary aromatic amines

B. Primary aliphatic amines

C. Secondary amines

D. Tertiary amines

Answer: B

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44. Hydrolysis of acetonitrile in acidic medium gives

A. CH_3CH_2OH

B. CH_3NC

C. CH_3CH_2CHO

D. CH_3COOH

Answer: D

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45. Alkyl isocyanide on reduction with $Zn - Hg / HCl$ gives

A. Primary amine

B. Tertiary amine

C. N-Alkyl alkanamine

D. N- Methyl alkanamine

Answer: D

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46. Cyanide is an

A. Zwitter ion

B. Cation

C. Ambident nulceophilie

D. Electrophile

Answer: C

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47. Match the following

$List - I$	$List - II$
(A) Conversion of amide to amine	(1) Hinsberg reagent
$(B)C_6H_5SO_2Cl$	(2) Hoffmann's bromam
(C) Conversio of primary amine to isocyanide	(3) Hoffmann's method Carbylamine reaction
(D) Diethyl oxalate	(4) Hoffmann mustard o
–	

A.

A	B	C	D
2	1	4	3

B.

A	B	C	D
2	3	4	1

C.

A	B	C	D
1	5	4	2

D.

A	B	C	D
3	4	1	2

Answer: A

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48. Which of the following reagents can be used to prepare ethyl carbylamine (as a major product) from ethyl iodide

A. HCN

B. KCN

C. CuCN

D. AgCN

Answer: D

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49. Treatement of ammonia with excess of ethyl chloride will yield

A. diethylamine

B. methylamine

C. tetraethylammoniumchloride

D. ethane

Answer: C

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50. Which of the following method is generally not employed for the separation of primary ,secondary and tertiary amines?

A. Fractional distillation

B. Hinsberg's method

C. Hoffmann's method

D. Filtration

Answer: D

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1. Which of the following statements about ribose is incorrect ?

A. It is polyhydroxy ketone

B. It is aldehyde sugar

C. It has five carbon atoms

D. It exhibits optical activity

Answer: A

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2. What is the net gain of ATP molecules in Glucolysis ?

A. 36

B. 12

C. 18

D. 28

Answer: A

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3. Which is incorrect statement ?

A. Strach is a polymer of $\alpha - D$ glucose

B. Amylose is a component of cellulose

C. Structure of galactose has five carbons and one oxygen in cycle.

D. Fructose is reducing sugar

Answer: B

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4. The mixture of compounds formed when glucose undergoes reversible isomerisation with sodium hydroxide solution

A. D - Glucose D- mannose and D-fructose

B. D-Glucose,D-galactose and D-fructose

C. D-Galactose ,D-glucose and L-fructose

D. D- Glucose, L-fructose and D- galactose

Answer: A

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5. Sucrose $\left(H^{-}\right)\ \left(H_2O\right)\ \rightarrow$ Y and X. The total no of optical isomers possible for Y and X are

A. $a.$ 16

B. $b.$ 8

C. $c.$ 32

D. $d.$ 24

Answer: D

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6. On hydrolysis with dil. H_2SO_4, starch and cellulose give 'X' and 'Y'. Then 'X' and 'Y' are a pair of

A. Enantiomers

B. Anomers

C. Functional isomers

D. Homologues

Answer: B

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7. Glucose and mannose are

A. Epimers

B. Anmers

C. Conformers

D. Functional isomers

Answer: A

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8. Which one'of the following is the configu- ration standard for giving D, L-configuration of sugars?

A. Erythrose

B. Arabinose

C. Glyceraldehyde

D. Glucose

Answer: C

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9. When the monosaccharide is converted to D-glyceraldehyde, then which carbon has the same configuration as in D-glyceraldehyde ?

A. Lowest numbers asymmetric carbon

B. Highest numbered asymmetric carbon

C. More oxidised carbon

D. Highest numbered carbon

Answer: B

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10. Sucrose reacts with acetic anhydride to form

A. Pentaacetate

B. Hexaacetate

C. Tetraacetate

D. Octaacetate

Answer: D

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11. Consider the statements:

I) Maltose is also known as malt sugar

II) Sucrose is also known as cane sugar

III) Lactose is also known as grape sugar

IV) Starch is also known as Amylum

The correct statement is / are

A. I,II and IV

B. I, II and III

C. II, III and IV

D. I and II

Answer: A

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12. Match the following

List -I	List -II
(A)Epimers	(i)Glucose
(B)Anomers	(2)Fructose
(C)Aldohexose	(3)Glucose and mannose
(D)Laevulose	$(4)\alpha-$ and β forms of glucose
$-$	(5)Glucose and fructose

The correct match is

A.

A	B	C	D
3	4	1	2

B.

A	B	C	D
4	3	1	2

C.

A	B	C	D
5	3	4	2

D.

A	B	C	D
5	4	1	3

Answer: A

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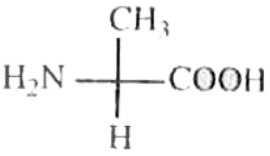
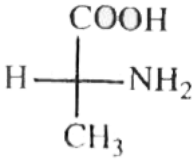
Amino Acids And Proteins

1. Which one of the following Fischer projection formula represents R - alanine ?

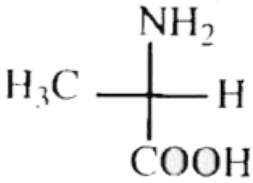
A.



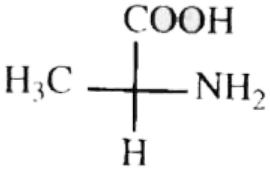
B.



C.



D.



Answer: B

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2. Which compound can exist in a dipolar (zwitter ion) structure ?

A. $C_6H_5CH_2CH(N=CH_2)COOH$

B. $(CH_3)_2CHCH(NH_2)COOH$

C. $C_6H_5CONHCH_2COOH$

D. $HOOCCH_2CH_2COCOOH$

Answer: B

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3. The percent composition of an organic compound $\underline{A}$ is carbon : 85.71 % and hydrogen 14.29%. Its vapour density is 14. Consider the following reaction sequence :

$\underset{-}{A} \xrightarrow{Cl_2/H_2O} \underset{-}{B} \xrightarrow[(2)\,H_3O^+]{(1)\,KCN/EtOH} \underset{-}{C}$ Identify $\underset{-}{C}$

A. $CH_3-\underset{\underset{OH}{|}}{CH}-CO_2H$

B. $HO-CH_2-CH_2-CO_2H$

C. $CH_3 - CH_2 - CO_2H$

D. $CH_3 - CH_2 - CO_2H$

Answer: B

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4. How many tripeptides can be prepared by linking the amino acids glycine,alanine and phenyl alanine?

A. One

B. Three

C. Six

D. Twelve

Answer: C

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5. which of the following is not a function of proteins?

A. nail formation

B. skin formation

C. muscle formation

D. providing energy for metabolism

Answer: D

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6. Mark the wrong statement about enzymes

A. Enzymes are highly specific both in binding chiral substrates and in catalysing their reactions

B. Each enzyme can catalyse a number of similar reactions.

C. Enzymes catalyse chemical reaction by lowering the energy of activation

D. Enzymes are needed only in very small amounts for their action.

Answer: B

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7. Regarding enzymatic reactions, the 4 steps are shown below

A) $E + S \rightarrow E - S$

B) $E - P \rightarrow E + P$

(C) $E - I \rightarrow E - P$

D) $E - S \rightarrow E - I$

The correct sequence of the steps is

A. A,D,C,B

B. A,B,C,D

C. D,C,B,A

D. A,C,B,D

Answer: A

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8. The amino acids which cannot be synthsised in the body but must be supplied through diet are

A. Essential amino acids

B. Non-essential amino acids

C. α - Amino acids

D. Acidic amino acids

Answer: A

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9. The number of peptide bonds presents in tetrapeptide is

A. 2

B. 5

C. 3

D. 4

Answer: C

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10. Which one of the following statements is incorrect regarding stereochemistry of most of the amino acids ?

A. Amino acid containing 3 carbon atoms is optically active

B. They have L- congiguration

C. They have R- configuration

D. Glycine is optically inactive

Answer: C

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11. The forces that stabilize the 2° and 3° structure of protien are:

A. H- bonds

B. Disulphide linkages

C. Both 1 and 2

D. Covalent bonds

Answer: C

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12. Which of the following one is not able to form finally by the hydrolysis of DNA or RNA

A. Hexose sugar

B. Phosphoric acid

C. Purine

D. Pyrimidine

Answer: A

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13. Which one of the following is not affected by the denaturation of protein?

A. Primary structure

B. Tertiary structure

C. Secondary structure

D. Quaternary structure

Answer: A

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14. Among the following, achiral amino acid is'

A. Glycine

B. Alanine

C. Proline

D. Tryptophan

Answer: A

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15. Protein with special three dimensional structure and biological activity is called :

A. Native protein

B. Conjugative protein

C. Simple protein

D. Globular protein

Answer: A

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16. In nucleic acids the nucleotide sub units linked by hydrogen bond

b) Nucleic acids control heredity at molecular level

(c) DNA is a dinucleotide and RNA is oligo- nucleotide

The correct statement is

A. all

B. a.c.

C. b only

D. a only

Answer: C

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17. The number of hydrogen bonds present in the sequence of a stretch of a double helical DNA 51 ATGCCTAA 3' is

A. 16

B. 19

C. 24

D. 20

Answer: B

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18. DNA finger printing is useful for

A) Identifying the criminals

B) Determining the paternity of individual

C) Identifying the dead bodies

A. A,B

B. A,C

C. B,C

D. A,B,C

Answer: D

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19. Which one of the following sequence of groups in AMP ?

A. Sugar -base-phosphate

B. Base -sugar -phosphate

C. Phosphate -base-sugar

D. Phosphate -acid -sugar

Answer: B

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20. Phospodiester linkages are present between

A. $C-3,$ of one nucleotide and C-5, of next nucleotide

B. C-5' of one nucleotide and C-4' of next nucleotide

C. C-1' of one nucleotide and C-5' of next nucleotide

D. $C-1'$ of one nucleotide and C-5 of next nucleotide

Answer: A

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21. The base pairing occurs in double helix of DNA is

A. A to T and G to C

B. A to G and T to C

C. A to C and G to T

D. G to T and A to C

Answer: A

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22. The small pieces of DNA which are synthe- sised discontinuously are joined together by an enzyme called

A. DNA ligase

B. DNA polymerase

C. RNA polymerase

D. Exonuclease

Answer: A

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23. The important features of genetic code are

a) It is universal

b) It is commaless

c) It is not degenerate

d) Third base is not always specific.

A. a only

B. b,c only

C. b,c,d only

D. a,b,and d only

Answer: D

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24. Most important energy carrier in living cell is

A. ADP

B. TTP

C. GTP

D. ATP

Answer: D

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Vitamins And Hormones

1. Which of the following is stored in liver

A. Vitamin A

B. Vitamin C

C. Vitamin B_2

D. Vitamin B_2

Answer: B

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2. Which type of chemical is Vitamin K

A. quinone

B. quinol

C. quinal

D. phenol

Answer: A

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3. The one that is synthesized in skin is

A. Vitamin A

B. Vitamin C

C. Vitamin D

D. Vitamin E

Answer: C

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4. Defficiency of the following vitamin leads to bleading gums

A. A

B. B_2

C. B_5

D. C

Answer: D

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5. The organic compound that transfer biological information from one group of cells to distant tissues or organs are called as

A. Vitamins

B. Proteins

C. Hormones

D. Carbohydrates

Answer: C

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6. Number of six membered rings present in a steroid nucleus is

A. 1

B. 2

C. 3

D. 4

Answer: C

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7. The sex hormone which controls the development and maintenance of pregnancy is

A. Cortisone

B. Thyroxine

C. Progesterone

D. Estrone

Answer: C

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8. Insulin is a

A. Non steroidal, peptide hormone

B. Steroidal, peptide hormone

C. Non steroidal ,amino acid hormone

D. Steroidal amino acid derivative hormone

Answer: A

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9. An example for amino acid hormone is ?

A. Insulin

B. Testosterone

C. Thyroxine

D. Progesterone

Answer: C

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10. Some examples are given in List - II and their type is given in List - I

List - I	List - II
(1) Lipid	(A) Histidine
(2) Protein	(B) Ascorbic acid
(3) Amino acid	(C) Cephalin
(4) Hormone	(D) Insulin
(5) Vitamin	

A.

A	B	C	D
4	1	2	5

B.
A	B	C	D
3	2	5	1

C.
A	B	C	D
3	5	1	4

D.
A	B	C	D
3	4	1	2

Answer: C

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11. In insulin molecule there are two chains 'A' and 'B', 'A' contain 'X' - amino acids and 'B' contain 'Y' amino acids. The value of X and Y are

A. 21,31

B. 21,30

C. 28,36

D. 32,34

Answer: B

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12. Synthetic testosterone promotes

A. Menstrual cycle

B. Muscle growth

C. Respiration

D. Birth control lagents

Answer: B

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Chemistry In Every Day Life

1.

Set-I	Set-II
(A)Noradrenaline	(1)Stable mental process
(B)Dopamine	(2)Regulation of control of movement
(C)Serotonin	(3)Mood changes
(D)Histamine	(4)Mild aches & pains
$(-)$	(5)secretion of HCl

A. $\begin{matrix} A & B & C & D \\ 1 & 2 & 3 & 5 \end{matrix}$

B. $\begin{matrix} A & B & C & D \\ 3 & 2 & 1 & 5 \end{matrix}$

C. $\begin{matrix} A & B & C & D \\ 3 & 2 & 4 & 5 \end{matrix}$

D. $\begin{matrix} A & B & C & D \\ 2 & 3 & 4 & 1 \end{matrix}$

Answer: B

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2. Drugs possesing same structural features will have

A) Same mechanism of action

B) Similar physiological & psycological effect

C) Similar phormocological effect.

A. only A,B

B. only B,C

C. only A,C

D. A,B,C

Answer: D

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3. Chemically Herion is

A. Morphinediacetate

B. Morphinmono acetate

C. Morphine dibenzoate

D. Morphinemonobenzoate

Answer: A

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4. Which of the following is not a bacterio static antibiotic ?

A. Erythromycin

B. Tetracyline

C. Chloramphenicol

D. Penicillin

Answer: D

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5. $Mg(OH)_2 + Al(OH)_3$ Mixture is better antacid than $NaHCO_3$ because

A. $NaHCO_3$ Solubilty in water is less than $Mg(OH)_3 \& Al(OH)_3$

B. $Al(OH)_3$ and $Mg(OH)_2$ are insoluble in water ,these donot raise P^H beyond 7

C. Less acid will be produced due to excessive HCO_3^-

D. $NaHCO_3$ is stomach irritant

Answer: B

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6. Dettol is a mixture of

A. chloroxylenol and terpineol

B. Furacine , and soframicine

C. Tincture of Iodine and Iodoform

D. Boric acid and bithional

Answer: A

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7. Which of the following drugs is tranquilizer and sedative ?

A. Sulphadiazine

B. Papaverine

C. Equanil

D. Mescaline

Answer: C

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8.

LIST-I	List -II
(A) Terfenadine	(1) 3Benzene rings
(B) Bromopheniramine	(2) 1Pyridene ring
(C) Ranitidine	(3) 1Furan ring

A. $\begin{matrix} 1 & 2 & 3 \\ A & B & C \end{matrix}$

B. $\begin{matrix} 1 & 2 & 3 \\ B & C & A \end{matrix}$

C. $\begin{matrix} 1 & 2 & 3 \\ C & A & B \end{matrix}$

D. $\begin{matrix} 1 & 2 & 3 \\ A & C & B \end{matrix}$

Answer: A

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9. Some statement are given below

(a) Chlordiazepoxide and meprobamate are relatively mild tranquilizers suitable for relieving tension

(b) Equanil is used in controlling depression and Hypertension

© If the level lof Noradrenaline is low then the persion suffers from depression

(d) Iproniazid contains heterocyclic ring where as phenelzine contains homocyclic ring

Correct statement are.

A. a and b

B. a and c

C. a,b and c

D. a,b,c and d

Answer: D

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10. which of the following statement is not true

A. Some disinfectants can be used as antiseptics at low concentration

B. Sulphadiazine is a synthetic antibacterial

C. Ampicillin is semi synthetic antibiotic

D. Aspirin is both analgesic and antipyretic

Answer: B

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11.

List-I	LIST-II
(A) Antipyretic	(1) Epsom salt
(B) Laxative	(2) Chloretone
(C) Hypnotic	(3) Paracetamol
(D) Both analgesic & Antipyretic	(4) Aspirin

The correct match is

A.

A	B	C	D
1	2	3	4

B.

A	B	C	D
3	1	2	4

C.
A	B	C	D
4	2	1	3

D.
A	B	C	D
4	3	2	1

Answer: C

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12.

LIST-I	LIST-II
(1)Iodoform	(A)Narrow spectrum
(2)Dil .aq. Boric acid	(B)Weak antiseptic for eyes
(3)Penicillin-G	(C)Antiseptic for wounds
(4)Chloramphenicol	(D)Broad spectrum antiboitic

Correct matching is

A.
A	B	C	D
1	3	4	2

B.
A	B	C	D
3	2	1	4

C.
A	B	C	D
3	2	1	4

D.
A	B	C	D
3	1	2	4

Answer: B

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13. Streptomycin, a well known antibiotic, is a derivative of

A. Peptides

B. Carbohydrates

C. Purines

D. Terpenes

Answer: B

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14. Statement-I : Antiseptic are not injected into the body.

Statement-II : Antiseptic are intravenous drugs

A. Both I and II are true

B. both I and II are false

C. I is true , but II is false

D. I is false but II is true

Answer: C

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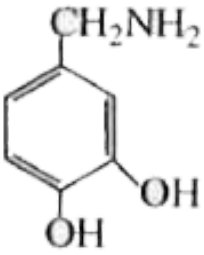
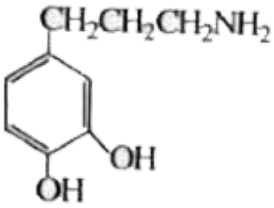
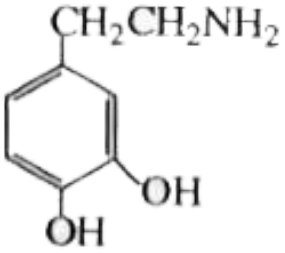
15. Parkinson's disease is linked to abnormalties in the levels of dopamine in the body. The structure of dopamine is

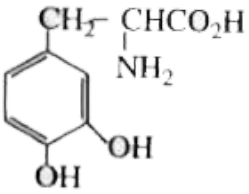
A. 

B. 

C.



D.



Answer: D

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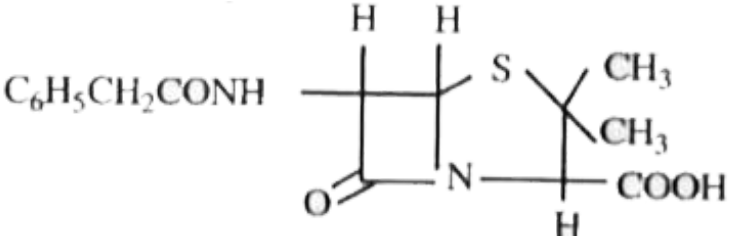
16. The structure given below is known as



A. Pennicillin F

B. Penicillin G

C. Ampicillin

D. Sulphadiazine

Answer: B

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17. Match List I with List II and selected the correct answer using the codes given below the lists:

List I	List-II
(I)Iodoform	(A)Anaesthetic
(II)Methyl salicylate	(B)Antiseptic
(III) Diethyl ether	(C)Insecticide
(IV) Hexachlorocylohexane	(D) Detergent
	(E)Pain balm

A. $I-B, II-E, III-C, I-D$

B. $I-D, II-B, III-A, IV-C$

C. $I-B, II-E, III-A, IV-C$

D. $I-C, II-A, III-D, IV-B$

Answer: C

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18. The substrate will be binded to the active site of the enzyme through

a) Ionic binding

b) Hydogen bonding

c) van der Waals interactions

d) Dipole-dipole interactions

Correct answer is

A. a,b and c only

B. b,c and d only

C. a,b and d only

D. a,b,c and d

Answer: D

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19. Detergents are prepared by the action of H_2SO_4 followed by neutralization by starting with

A. Cholestrol

B. Lauryl alcohol

C. Cyclohexanol

D. p-Nitrophenol

Answer: B

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20. The chemical messengrs transport message between

a) Neuron to neuron

b) Neuron to muscles

c) Enzyme to receptor are

d) Enzyme to enzyme

Correct answers are

A. a only

B. b only

C. a and b

D. a,b,c and d

Answer: C

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21. Enzyme inhibitors may attack on

a) Active site of enzyme

b) Allosteric site of enzyme

c) Tongue

d) Stomach walls

Correct answers are

A. a only

B. b only

C. a and b

D. a,b,c and d

Answer: C

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22. The group commonly present in synthetic detergents is

A. RNa

B. $RONa$

C. $RCOONa$

D. $RC_6H_4SO_3Na$

Answer: D

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23. Which is not true for a detergent molecule?

A. It has a non-polar organic part and a polar group

B. It is not easily biodegraded

C. It is sodium salt of a fatty acid

D. It is a surface active reagent

Answer: C

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24. Which one of the following is not a surfactant ?

A. $CH_3-(CH_2)_{15}-\overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{N^+}}-CH_3Br^-$

B. $CH_3-(CH_2)_{14}-CH_2NH_2$

C. $CH_3-(CH_2)_{16}CH_2OSO\bar{N}_2a^+$

D. $OCH-(CH_2)_{14}-CH_2-COO^-Na^+$

Answer: A

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25. Which of the following is an anionic detergent ?

A. $CH_3(CH_2)_{10}CH_2OSO_3Na$

B. $C_6H_5SO_3Na$

C. $\left[CH_3(CH_2)_{15}N(CH_3)\right]^+Br^-$

D. $CH_3(CH_2)_{16}COO(CH_2CH_2O)_nCH_2CH_2OH$

Answer: A

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Polymers

1. Which of the following is an example of co-polymer ?

A. PTFE

B. Perlon -L

C. Neoprene

D. PET

Answer: D

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2. Which of the following statements about terylene are correct ?

A) It is a poly ester

B) It is obtained by the reaction between ethylene glycol and terephthalic acid

C) It is a condensation polymer

D) It is a natural polymer

A. A and B

B. C and D

C. A,B and C

D. A,B and D

Answer: C

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3. Common monomer in melamine formaldehyde and Bakelite

A. Formaldehyde

B. Phenol

C. Melomine

D. Ethylene glycol

Answer: B

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4. Vinyl polymers are also known as

A) Additional polymers

B) Chain reaction polymers

C) Condensation Polymers

The correct answer is

A. A only

B. b only

C. A and B

D. A,B and C

Answer: C

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5. Which one of the following polymer can be softened and hardened repeatedly on heating and cooling without change in its property ?

A. Bakellite

B. Polysiloxane

C. Urea formaldehyde resin

D. PVC

Answer: D

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6. IUPAC names of monomers in Nylon-6,6 are

A. Ethylene , glycol , terephthalic acid

B. Adipic acid, hexamethylenediamine

C. Butane dionic acid , Hexane -1,6 -diamine

D. Hexanedioic acid , Hexane -1,6 -diamine

Answer: D

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7. Which of the following statements about condensation polymers are correct ?

A. 1. All are correct

B. 2. Only b is correct

C. 3. Only b and c are correct

D. 4. only b ,c and d are correct

Answer: C

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8. Chain initiation and chain propagation steps are involved in

A. all

B. only a, b and c

C. only a

D. only a and c

Answer: B

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9. Vinyl polymers are also known as

A) Additional polymers

B) Chain reaction polymers

C) Condensation Polymers

The correct answer is

A. All are correct

B. only a, c & d are correct

C. only c and d are correct

D. only c is correct

Answer: A

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10. Vinyl derivatives undergo which type of polymerization

A. cationic polymerization only

B. anionic polymerization only

C. condensations polymerization only

D. cationic (or) anionic (or) free radical polymerization

Answer: D

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11. Chloroprene is used in making

A. Synthetic rubber

B. Plastic

C. Pelrol

D. All

Answer: A

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12. The monomers present in glyptal are

A. ethylene glycol, caproic acid

B. vinyl chloride , terepthalic acid

C. ethylene, glycol , pthalic acid

D. urea , formaldehyde

Answer: C

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13. Natural rubber on ozonolysis gives

A. 4-oxopentanal

B. 3-oxopentanal

C. Hexane -2,5 - diene

D. Pentanedial

Answer: A

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14. The formula for calculating M_n of a polymer is

A. $\frac{\sum NiMi}{\sum Ni}$

B. $\frac{\sum NiMi}{\sum Mi}$

C. $\frac{\sum NiMi^2}{\sum Mi}$

D. $\frac{\sum NiMi^2}{\sum NiMi}$

Answer: A

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15. During the vulcanization of rubber, sulphur cross linking occurs at

a) Double bonds

b) Allylic - CH_2 - groups

c)Methyl groups

The correct answer is

A. only a

B. only b

C. only a and b

D. all

Answer: C

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16. Which of the following is a biodegradable polymer

A. A,B,C

B. B,C,D

C. A,D

D. All are correct

Answer: C

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17. For natural polymers PDI is generally

A. 1

B. 10

C. 100

D. 1000

Answer: A

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18. Amide linkage is absent is

A. Nylon -6

B. Nylon -66

C. Nylon -2- Nylon -6

D. PHBV

Answer: D

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19. $\bar{M}_n$ and $\bar{M}_w$ of a synthetic polymer are related as

A. $\bar{M}_n < \bar{M}_W$

B. $\bar{M}_n > \bar{M}_W$

C. $\bar{M}_n = \bar{M}_W$

D. $\bar{M}_n = \sqrt{\overline{M_W}}$

Answer: A

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20. Which of the following is currently used as a tyre cord

A. Terylene

B. Polyethylene

C. Bakelite

D. Nylon -6

Answer: D

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21.

List - I	List - II
A) Phenol $+CH_2O$	1) Synthetic rubber
B) Terephthalic acid and ethylene glycol	2) Bakelite
C) Caprolactum	3) Nylon - 6
D) Butadiene and styrene	4) Terylene

A. $\begin{matrix} A & B & C & D \\ 2 & 3 & 4 & 1 \end{matrix}$

B. $\begin{matrix} A & B & C & D \\ 3 & 1 & 2 & 4 \end{matrix}$

C. $\begin{matrix} A & B & C & D \\ 2 & 4 & 3 & 1 \end{matrix}$

D. $\begin{matrix} A & B & C & D \\ 1 & 2 & 3 & 4 \end{matrix}$

Answer: C

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22.

List - I	List - II
A) PHBV	1) Synthetic fibres
B) Teflon	2) Orthopaedic devices
C) Nylon - 66	3) For making laminates
D) Bakelite	4) non - sticking utensils
	5) Automobie tyres

A. $\begin{matrix} A & B & C & D \\ 2 & 4 & 1 & 3 \end{matrix}$

B. $\begin{matrix} A & B & C & D \\ 1 & 3 & 2 & 4 \end{matrix}$

C. $\begin{matrix} A & B & C & D \\ 3 & 2 & 1 & 5 \end{matrix}$

D. $\begin{matrix} A & B & C & D \\ 4 & 1 & 3 & 2 \end{matrix}$

Answer: A

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23. Match the following

List -I (Polymer)	List -II(type of monomers
(1)Terylene	(a)aldehyde aromatic alcohol
(2) Nylon $-$ 66	(b)Diamine aliphatic dioic acid
(3)Bakellite	(c)Diol , aromatic dioic acid
(4)Buna -N	(d)Unsaturated ester
	(e)Diene and unsaturated cyanide

A. $\begin{matrix} 1 & 2 & 3 & 4 \\ c & b & a & e \end{matrix}$

B. $\begin{matrix} 1 & 2 & 3 & 4 \\ b & c & a & d \end{matrix}$

C. $\begin{matrix} 1 & 2 & 3 & 4 \\ b & c & d & e \end{matrix}$

D. $\begin{matrix} 1 & 2 & 3 & 4 \\ c & b & e & d \end{matrix}$

Answer: A

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24. Wrong statement about the polymer BuNa - S is

A. Bu' stands for 1,3 -butadiene

B. Na' stands for sodium (catalyst)

C. S' stands for styrene

D. It is used in manufacture of hoses

Answer: D

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25.

List - I (polymer)	List - II (use)
1) Urea formalde hyde resin	a) Unbreakable cups
2) Nylon - 6	b) TV cabinets
3) Polystyrene	c) Oils seals
4) GRN	d) Tyre cords

A. $\begin{matrix}1 & 2 & 3 & 4\\ a & d & b & c\end{matrix}$

B. $\begin{matrix}1 & 2 & 3 & 4\\ a & b & d & c\end{matrix}$

C. $\begin{matrix}1 & 2 & 3 & 4\\ a & b & c & d\end{matrix}$

D. $\begin{matrix}1 & 2 & 3 & 4\\ d & c & b & a\end{matrix}$

Answer: A

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26. Wrong statement about BuNa N is

A. It is copolymer

B. N' stands for propenenitrile

C. its structure is

$$\left(-CH_2 - CH = CH - CH = CH - \underset{CN}{\underset{|}{C}}H - \right)_n$$

D. it is an addition polymer

Answer: C

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27. The monomer for polystyrene is

A. Ethane

B. Ethene

C. Ethyne

D. Vinyl benzene

Answer: D

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28. Structure of styrene butadine rubber is

A. $\left(-CH_2 - CH = CH - CH_2 - CH_2 - \underset{|}{CH} - \right)_{C_6H_5 \; n}$

B. $\left(-CH_2-CH=CH-CH_2-CH_2-\underset{|}{CH}-CH_2- \right)_{C_6H_5 \; n}$

C. $\left(-CH_2-CH=CH-CH=CH-\underset{|}{CH}- \right)_{C_6H_5 \; n}$

D. $\left(-CH=CH-CH=CH-CH-\underset{|}{CH_2}- \right)_{C_6H_5 \; n}$

Answer: A

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29. Which one of the following polymers molecules contain more double bonds in the polymer chain in the repeating unint.

A. Polystyrene

B. BuNa-S

C. PVC

D. Polyethylene

Answer: B

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30.

List - I (polymer)	List - II (Stucture)
1) Urea formaldehyde resin	a) $\left(-NH-(CH_2)_5-CO- \right)_n$
2) Neoprene	b) $\left(-NH-(CH_2)_6-NH- \right)_n$
3) PVC	c) $\left(-CH_2-\underset{\underset{Cl}{\mid}}{C}=CH-CH_2- \right)_n$
4) Nylon - 5	d) $\left(-CH-\underset{\underset{Cl}{\mid}}{CH}- \right)_n$
	e) $\left(-NH-CO-NH-CH_2- \right)_n$

A. $\begin{matrix} 1 & 2 & 3 & 4 \\ e & d & c & b \end{matrix}$

B. $\begin{matrix} 1 & 2 & 3 & 4 \\ e & c & d & b \end{matrix}$

C. $\begin{matrix} 1 & 2 & 3 & 4 \\ a & c & d & b \end{matrix}$

D. $\begin{matrix} 1 & 2 & 3 & 4 \\ e & c & d & a \end{matrix}$

Answer: D

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31. Which of the following alkene a most reactive towards cationic polymersation

A. $CH_2 = CHCH_3$

B. $H_2C = CHCl$

C. $H_2C = CHC_6H_5$

D. $H_2C = CHCO_2CH_3$

Answer: C

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32. Match the following:

Set - I	Set - II
A) $C_2H_5OH \xrightarrow[170^\circ C]{\text{Conc. } H_2SO_4}$	1) Methane
B) $CHI_3 \xrightarrow[Ag(\text{powder})]{\Delta}$	2) Ethylene
C) $CH_3COONa_{(aq)} \xrightarrow{\text{electrolysis}}$	3) Benzene
D) $CH_3COONa \xrightarrow[CaO]{NaOH}$	4) Acetylene
	5) Ethane

A. $\begin{matrix}1 & 2 & 3 & 4\\ C & D & A & B\end{matrix}$

B. $\begin{matrix}1 & 2 & 3 & 4\\ C & B & A & D\end{matrix}$

C. $\begin{matrix}1 & 2 & 3 & 4\\ C & B & D & A\end{matrix}$

D. $\begin{matrix}1 & 2 & 3 & 4\\ C & A & B & D\end{matrix}$

Answer: C

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33. Buna -N synthetic rubber is a copolymer of :

A. $H_2C = CH - CH = CH_2$ and $H_5C_6 - CH = CH_2$

B. $H_2C = CH - CN$ and $H_2C = CH - CH = CH_2$

C. $H_2C = CH - CN$ and $H_2C = CH - \underset{CH_3}{\underset{|}{C}} = CH_2$

D. $H_2C = CH - \overset{Cl}{\underset{|}{C}} = CH_2$ and $H_2C = CH - CH = CH_2$

Answer: B

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34. Catalyst commonly used in free radical polymerisation is

A. $MnCl_2$

B. $Fe - Mo$

C. $R - CO - O - R$

D. $R - O - O - R$

Answer: D

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35. Number of steps in free radical polymerisation process

A. Four

B. Three

C. Two

D. One

Answer: B

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36. Acrylonitrile is the other name of

A. $H_2C = CHCl$

B. $H_2C = CHOH$

C. $H_2C = CHC_6H_5$

D. $H_2C = CHCN$

Answer: D

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37. Which of the following is relation stiff and hard addition homopolymer ?

A. Bekalite

B. Melamine -formaldehyde

C. Polypropelene

D. Urea - formaldehyde

Answer: C

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38. Number of nitrogen atoms present in melamine is x. The number of - imine and - amine groups is y and z. x,y and z are respectively.

A. 3,1,2

B. 6,1,3

C. 6,3,3

D. 6,3,1

Answer: C

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39. Hydrolysis of the monomers of polyacrylonitrile gives

A. Propanamine

B. Ethanoic acid

C. Butanamine

D. Propanoic acids

Answer: D

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40. Free radical polymerisation may be important for the polymerisation of :

(A) $HC \equiv CH,$

(B) $H_2C = CH_2$ and

© $H_2C = CH - CH = CH_2$

A. A and B

B. B and C

C. A and C

D. A, B and C

Answer: B

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41. The polymer containing strong intermolecular forces e.g. hydrogen bonding is

A. natural rubber

B. teflon

C. nylon6,6

D. Polystyrene

Answer: C

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42. Bakelite is prepared by the reaction between

A. Urea and formaldehyde

B. Tetramethylene glycol and hexamethylene diisocyanate

C. Phenol and formaldehyde

D. Ethylene glycol and dimethyl terephhalate.

Answer: C

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43. The hard plastic covers of telephones are made of polymers of

A. Acrylonitrile

B. Styrene

C. Fluoromethane

D. Phenol formaldehyde

Answer: D

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44. Vulcanised rubber resists

A. Jerking movement

B. Cold temperature

C. Drops of acid rains

D. Wear and tear due to friction

Answer: D

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