Exercise # 1

Q.1 Which of the following statements is untrue :

[1] A primary alcohol has CH_2OH group

[2] A secondary alcohol has two carbon atoms

[3] A tertiary alcohol has a minimum of four carbon atoms

[4] A primary alcohol with a branched chain has a minimum of four carbon atoms

Q.2 Which of the following is not a dihydric alcohol :

[1] Trimethylene glycol [2] Ethylene glycol [3] Glycerine [4] Glycol

Q.3 Which of the following compounds does not contain at least two primary carbon atoms and two primary alcoholic groups :

[1] Glycerol [2] Glycol [3] Trimethylene glycol [4] Methyl glycol

Q.4 Which of the following reactions does not lead to formation of an alkanol :

[1] $RCOOR' + KOH \longrightarrow$ [2] $R_2O + H_2O \xrightarrow[\Delta]{dil./H_2SO_4}$

[3] $RCOR' + 2H \xrightarrow{Na+ethanal}$ [4] $(RCO)_2O + H_2O \longrightarrow$

Q.5 Which of the following reducing agents reduces carboxylic acids to alkanols :

[1] Sodium and ethanol [2] Sodium and n–butyl alcohol

[3] Lithium aluminium hydride [4] Magnesium amalgam and conc. HCl

Q.6 Which of the following enzymes is not present in yeast :

[1] Maltase [2] Zymase [3] Invertase [4] Diastase

Q.7 The enzyme diastase is present in :

[1] Wash [2] Wort [3] Malt [4] Yeast

Q.8 Starch is converted into sugar by the enzyme :

[1] Maltase [2] Zymase [3] Maltose [4] Diastase

Q.9 Which enzyme converts glucose into ethanol :

[1] Invertase [2] Zymase [3] Maltse [4] Diastase

Q.10 Maltose (a disaccharide) is converted into the monosaccharide by the enzyme :

[1] Invertase [2] Maltase [3] Zymase [4] Diastase

Q.11 Which enzyme converts canesugar into a mixture of glucose and fructose :

[1] Zymase [2] Invertase [3] Maltase [4] Diastase

Q.12 Which of the following statements is false :

[1] Industrial alcohol is rectified spirit

[2] Industrial methylated spirit contains 95% ethanol and 5% methanol

[3] Mineralised methylated spirit contains 90% rectified spirit, 9% methanol and 1% petroleum oil

[4] Alcohol can be dried over calcium chloride

Q.13 Ethanol cannot be denatured by adding :

[1] Pyridine [2] Caoutchoucine [3] Methanol [4] Methanal

Q.14 Methanol is not prepared by :

[1] Destructive distillation of wood [2] Catalytic hydrogenation of carbon monoxide

[3] Catalytic oxidation of methane [4] Hydroboration–oxidation of ethylene

Q.15 Pyroligneous acid contains :

[1] Acetic acid, acetone and ethanol [2] Formic acid, acetone and methanol

[3] Methanol, acetic acid and acetone [4] Formic acid, ethanol and acetone

Q.16 Methanol reacts with calcium chloride to form an alcoholate of the structure :

[1] $CaCl_2.2CH_3OH$ [2] $CaCl_2.4CH_3OH$ [3] $CaCl_2.3CH_3OH$ [4] $CaCl_2.CH_3OH$

Q.17 Methanol is not used as :

[1] Solvent [2] An antifreeze [3] Heart stimulant [4] Motor fuel

Q.18 Which of the following statements is incorrect :

[1] The catalyst used in the hydrogenation of carbon monoxide is a mixture of oxides of copper, zinc and chromium

[2] Synthesis gas is a mixture of CO and hydrogen in the ratio 1 : 3 by volume

[3] Methanol forms an azeotrope with acetone and also with water

[4] Methanol vapours form an expolsive mixture with air or oxygen when ignited

Q.19 Which of the following reactions of alkanols does not involve C–O bond breaking :

[1] $CH_3CH_2OH + SOCl_2$ [2] $CH_3CH(OH)CH_3 + PBr_3$

[3] $CH_3CH_2OH + CH_3COOH$ [4] $ROX + HX$

Q.20 Which of the following compounds does not have an ester linkage :

[1] Ethyl acid sulphate [2] Diethyl hydrogen phosphate

[3] Ethyl acetate [4] $CH_3CO–O–CO–CH_3$

Q.21 Which of the following is a correct statement :

[1] An alcohol is a stronger acid than water

[2] An alkoxide ion is a stronger base than hydroxide ion

[3] Amide ion is a weaker base than alkoxide ion

[4] Ammonia is a stronger acid than an alcohol

Q.22 Which of the following is least soluble in water :

[1] CH_3OH [2] CH_3CH_2OH [3] $CH_3CH_2CH_2OH$ [4] $CH_3CH_2CH_2CH_2OH$

Q.23 Which of the isomers of n–butyl alcohol exhibit optical isomerism :

[1] Butyl alcohol [2] Sec. Butyl alcohol

[3] 2–Methyl–1–propanol [4] 2–Methyl–2–Propanol

Q.24 Alcohols are reduced by red phosphorus and hydroiodic acid into :

[1] Aldehydes [2] Alkoxyalkanes [3] Alkanes [4] Anhydrides

Q.25 Which of the following alcohols does not give an aldehyde on oxidation :

[1] Benzyl alcohol [2] Sec. butyl alcohol [3] Allyl alcohol [4] Crotyl alcohol

Q.26 Which of the following alcohols gives a red colour in victor Meyer test :

[1] n–Propyl alcohol [2] Isoproyl alcohol [3] $(CH_3)_3C–OH$ [4] Sec. Butyl alcohol

Q.27 Methanol can be distinguished from ethanol by the following except :

[1] Reaction with iodine and alkali [2] Reaction with salicylic acid and H_2SO_4

[3] Reaction with Lucas reagent [4] Boiling point

Q.28 Methanol on heating with salicylic acid and a few drops of conc. H_2SO_4 gives the smell of :

[1] Bitter almonds [2] Oil of wintergreen [3] Rotten eggs [4] Mustard oil

Q.29 Which of the following alcohols gives iodoform reactions :

[1] n–propyl alcohol [2] Isobutyl alcohol [3] sec. Butyl alcohol [4] n–Butyl alcohol

Q.30 The compounds A, B and C in the reaction sequence :

$A \xrightarrow{\text{diastase}} B \xrightarrow{\text{maltase}} C \xrightarrow{\text{zymase}} C_2H_5OH + CO_2$ are :

[1] Starch, sucrose, fructose [2] Starch, sucrose, glucsoe

[3] Sratch, maltose, glucose [4] Starch, surcose, maltose

Q.31 Methanol on heating with hot copper gives the smell of :

[1] Oil of bitter almonds [2] Oil of mirbane [3] Formalin [4] Vinegar

Q.32 Addition of borane to 1–butene followed by oxidative alkaline hydrolysis gives :

[1] n–butyl alcohol [2] sec. butyl alcohol [3] isobutyl alcohol [4] ter. butyl alcohol

Q.33 The compound A, B and C in the reaction sequence :

$CH_3–CH_2OH \xrightarrow{PBr_3} A \xrightarrow{\text{alc. KOH}} B \xrightarrow{Br_2} C$ are given by the set :

[1] Ethyl bromide, CH_3CH_2OH, CH_3CHBr_2 [2] C_2H_5Br, $CH{\equiv}CH$, $CH_2{=}CHBr$

[3] C_2H_5Br, $CH_2{=}CH_2$, $CH_2Br–CH_2Br$ [4] C_2H_5Br, CH_3CH_2OH, $BrCH_2–CH_2Br$

Q.34 Alcohol are stronger acids than alkanes. This is clear from the reaction :

[1] $2ROH + 2Na \longrightarrow 2RO^-Na^+ + H_2$ [2] $ROH + R'MgX \longrightarrow R'H + RO–MgX$

[3] $ROH + R'COOH \longrightarrow R'COOR + H_2O$ [4] $ROH + R'COCl \longrightarrow R'COOR + H_2O$

Q.35 The main product obtained by heating ethanol with concentrated sulphuric acid at 140°C is :

[1] Ethylene [2] Ethyl hydrogen sulphate

[3] Ethoxyethene [4] Ethoxyethane

Q.36 The oxidation of a secondary alkanol with Cr(VI) leads to the formation of :

[1] An alkanone and Cr (II) [2] A ketone and Cr (III)

[3] An alkanal and Cr (III) [4] A ketone and Cr (II)

Q.37 Polyhydroxy alcohols have higher boiling point than monohydric alcohols because :

[1] The former have more than one OH group

[2] The former have higher moelcular weights

[3] The former provide more than one site per moelcule for hydrogen bonding

[4] The latter are more volatile

Q.38 The "notorious" alcohol deposited on the walls of arteries and the chie constituent of gallstones is :

[1] Ethanol [2] Cholesterol [3] Glycol [4] Glycerol

Q.39 The molecular formula C_7H_8O represents the following except :

[1] A mixed aliphatic ether [2] Phenolic compounds

[3] A cycloalkanol [4] An aralkanol

Q.40 Most phenolic compounds are insoluble in water but phenol is slightly soluble. This is due to :

[1] the presence of a hydroxy group [2] Hydrogen bonding with water molecules

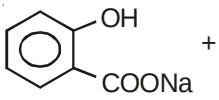
[3] Its low melting point [4] High boiling point

Q.41 Which of the following compounds shows intramolecular hydrogen bonding :

[1] p–Nitrophenol [2] Ethanol [3] o–Nitrophenol [4] Methanamine

Q.42 Which of the following reactions will not lead to a phenol :

[1] $C_6H_5SO_3Na + NaOH \xrightarrow{Fuse}$ [2] $C_6H_5N_2Cl + H_2O \xrightarrow{Boil}$

[3] $C_6H_5ONa + RX \xrightarrow[Heat]{NaOH}$ [4]  + NaOH(CaO) $\xrightarrow{Heat}$

Q.43 Phenol is commercially prepared by :

[1] Decarboxylation of sodium salicylate

[2] Distilling diazonium sulphate solution

[3] Cumene–phenol process

[4] Fusion of sodium benzene sulphonate with solid caustic soda

Q.44 The compounds A, B and C in the reaction sequence cumene $\xrightarrow{O_2}$ A $\xrightarrow{Aq.\ H_3O^+}$ B + C are given by the set :

[1] Cumene oxide, phenol, CH_3CHO [2] Cumene hydroperoxide, Catechol, CH_3CHO

[3] Cumene hydroperoxide, Phenol CH_3COCH_3 [4] Cumene oxide, Phenol, CH_3COCH_3

Q.45 Sodium phenate reacts with acetyle chloride to form :

[1] Methyl benzoate [2] Acetyl phenol [3] Phenyl acetate [4] Chlorobenzene

Q.46 Phenol undergoes electrophilic substitution reactions more readily than all benzene derivatives because of :

[1] Slightly water solubility of phenol

[2] Acidic nature of phenol

[3] Strongly electron–releasing nature of phenoxide ion

[4] Low melting point of phenol

Q.47 The reaction, Phenol $\xrightarrow[NaOH]{K_2S_2O_8}$ Quinol, is called :

[1] Lederer–Manasse reaction [2] Reimer–Tiemann reaction

[3] Elbs persulphate oxidation [4] Kolbe's reaction

Q.48 Phenol when refluxed with $CHCl_3$ and alkali at 60°C gives :

[1] Benzaldehyde [2] Benzoic acid [3] Salicylic acid [4] Salicyladehyde

Q.49 Phenol can be distinguished from ethanol by reactions with the following except :

[1] Iodine and alkali [2] Ferric chloride [3] Acetyl chloride [4] Bromine

Q.50 Reimer–Tiemann formylation reaction involves addition of :

[1] Chloroform on phenoxide ion [2] Trichloromethyl carbanion on phenoxide ion

[3] Dichlorocarbene on phenoxide ion [4] Hydroxide ion on phenol

Q.51 Phenol on treatment with methyl chloride in the presence of anhydrous $AlCl_3$ gives chiefly :

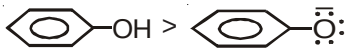
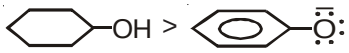
[1] o–cersol [2] m–cersol [3] anisole [4] p–cersol

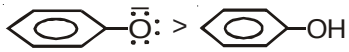
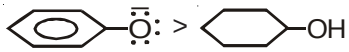
Q.52 Phenol reacts with aqueous solution of bromine to give :

[1] Tribromobenzene [2] Trinitorphenol

[3] 2,4,6–tribromophenol [4] A mixture of ortho bromophenol and para bromophenol

Q.53 Which of the following is the correct stabiltiy order :

[1]  [2] 

[3]  [4] 

Q.54 Which of the following reactions leads to an ether formation :

[1] p–cersol + p–nitrobenzyl bromide $\xrightarrow[\Delta]{\text{Aq. NaOH}}$ [2] Phenol + chloroacetic acid $\xrightarrow[\Delta]{\text{Aq. NaOH}}$

[3] Phenol + benzoyl chloride $\xrightarrow{OH^-}$ [4] Phenol + benzenesulphonyl chloride $\longrightarrow$

Q.55 Phenol on heating with conc. sulphuric acid at 110ºC gives mainly :

[1] Benzenesulphonic acid [2] p–phenolsulphonic acid

[3] o–phenolsulphonic acid [4] m–phenolsulphonic acid

Q.56 Heating of a phenol with sodium nitrite and a few drops of H_2SO_4 gives a dark colour. This reaction mixture turns blue on addition of alkali. This reaction is called :

[1] Lederer–Manasse reaction [2] Lucas test

[3] Liebermann nitroso reaction [4] Lossen rearrangement

Q.57 A water insoluble aromatic compound dissolves in sodium hydroxide but not in aqueous $NaHCO_3$. It is likely to be :

[1] C_6H_5COOH [2] $C_6H_5COCH_3$ [3] C_6H_5OH [4] $C_6H_5NH_2$

Q.58 The reaction of phenol with chloroform and alkali is known as :

[1] Carboxylation of phenol [2] Diazotisation of phenol

[3] Nitrosation of phenol [4] Formylation of phenol

Q.59 Phenol on heating with phthalic anhydride and sulphuric acid gives :

[1] Phenetole [2] Phenolphthalein [3] Phenanthrene [4] Pseudonitrole

Q.60 Anisole is obtained from phenol by reaction with :

[1] NaOH + $CHCl_3$ [2] NaOH + CH_3I [3] NaOH + C_2H_5I [4] NaOH + CO_2

Q.61 Phenol on treatement with aqueous solution of ferric chloride gives :

[1] Red colour [2] Violet colour [3] Blue colour [4] Orange colour

Q.62 Phenol is not used in the manufacture of :

[1] Phenolic resins [2] Dyes and herbicides

[3] Petrol subtitutes [4] Expolsives and wood preservatives

Q.63 Which of the following is not a correct statement :

[1] Phenol is a much weaker acid than benzoic acid

[2] The reaction of ferric chloride with phenol to give violet colour is characteristic of $-\underset{\underset{OH}{|}}{C}=C-$ group

[3] Phenol is a stronger acid than ethanol but weaker than benzyl alcohol

[4] Picric acid does not contain a –COOH group

Q.64 Select the incrorrect statement :

[1] Phenoxide ion is stabilized more than phenol

[2] Cyclohexanol is a stronger acid than phenol

[3] Phenol on refluxing with conc. HBr does not give bromobenzene

[4] Cyclohexanol on heating with HBr forms bromocyclohexane

Q.65 The widely used pain reliever aspirin is prepared by :

[1] Treating phenol with Ac_2O [2] Reacting salicylic acid with methanol

[3] Reacting salicylic acid with acetic anhydride [4] Reacting phenol with sulphuric acid

Q.66 Ethers are more volatile than alcohols containing same number of carbon atoms. This is because :

[1] Ethers are polar compounds [2] Ethers do not exhibit hydrogen bonding

[3] Ethers are immiscible with water [4] Ethers are miscible with water

Q.67 Ethanol when heated with concentrated sulphuric acid gives all of the following compounds except :

[1] $C_2H_5–O–SO_2OH$ [2] $C_2H_5–O–C_2H_5$ [3] $CH_2=CH_2$ [4] $CH\equiv CH$

Q.68 The preparation of ethers from alcohols by using sulphuric acid is called :

[1] Williamson's ether synthesis [2] Williamson's continuous etherification process

[3] Ziesel's method [4] Zerewitinoff method

Q.69 Ether is used as :

[1] An antiseptic and a solvent

[2] An anaesthetic and a solvent

[3] A fire extinguisher under the trade name pyrene

[4] A dry cleaning solvent

Q.70 Ether reacts wtih air to form :

[1] Acetic anhydride [2] Ether hydroperoxide [3] An ester [4] Alkanol

Q.71 Ether bottles should not be kept open in air because :

[1] Ether is an anaesthetic [2] Ether forms an explosive peroxide

[3] Ether is costly [4] Ether gets oxidised to ethanol

Q.72 The reaction of HI on ethers is important because it is used for estimation of :

[1] Alcoholic groups in natural compounds [2] Ether groups in natural compounds

[3] Amino groups in natural compounds [4] Carbonyl groups in natural compounds

Q.73 The decomposition of ethers by HI or HBr is called :

[1] Zerewitinoff's reaction [2] Ziesel's method

[3] Williamson's method [4] Hell–volhard–Zelinsky reaction

Q.74 The simplest cyclic ether is :

[1] Furane [2] Tetrahydrofuran [3] Anisole [4] Ethylene oxide

Q.75 Ethers are not prepared by :

[1] Expoxidation

[2] Reaction of a sodium alkoxide with an alkylhalide

[3] Heating a silver carboxylate with alkyl halide

[4] Williamson's continuous etherification process

Q.76 Which of the following ethers has highest boiling points is :

[1] Ethyl ether [2] Vinyl ether [3] Phenyl ether [4] Tetrahydrofuran

Q.77 The Williamson synthesis involves :

[1] A nucleophilic addition [2] An electrophilic substitution

[3] SN^2 displacement [4] SN^1 displacement

Q.78 Which of the following statements is untrue :

[1] Anisole on treatent with HI forms phenol and CH_3I

[2] 2–Ethoxypropane on heating with HBr forms isopropyl bromide and ethyl bromide

[3] Air ether–vapour mixtures are used as anaesthetic

[4] Air ether–vapour mixtures detonate violently

Q.79 Ethoxyethane on reaction with ethanoyl chloride in presence of anhydrous $AlCl_3$ gives :

[1] Ethyl methyl ketone [2] Ethyl acetate

[3] Ethyl methanoate [4] Diethyl ketone

Q.80 Which of the following reactions does not lead to formation of ethanol :

[1] $CH_3COOC_2H_5 \xrightarrow{Na + \text{ethanol}}$ [2] $CH_3COOH \xrightarrow{LiAlH_4}$

[3] $CH_2{=}CH_2 + CO + H_2 \longrightarrow$ [4] Diethyl ether $\xrightarrow{\text{dil. } H_2SO_4 + \text{heat}}$

Answer Key

Qus.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Ans.	2	3	4	4	3	4	3	4	2	2	2	4	4	4	3	2	3	3	3	4
Qus.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Ans.	2	4	2	3	2	1	3	2	3	3	3	1	3	2	4	2	3	2	3	2
Qus.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	3	3	3	3	3	3	3	4	3	3	4	3	3	1	2	3	3	4	2	2
Qus.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Ans.	2	3	3	2	3	2	4	2	2	2	2	2	2	4	3	3	3	3	2	3

Exercise # 2

Q.1 Glycerol reacts with nitric acid to form an explosive compound called nitroglycerine having the structure :

[1] CH_2OH–$CHOH$–CH_2–O–NO_2 [2] CH_2OH–CH(–O–NO_2)–CH_2OH [3] CH_2(–O–NO_2)–CH(–O–NO_2)–CH_2–O–NO_2 [4] CH_2(–O–NO_2)–CH(–O–NO_2)–CH_2OH

Q.2 Crotyl alcohol has the structure :

[1] CH_2=CH–CH_2OH [2] CH_2=CH(OH)–CH_3

[3] CH_3–CH=CH–CH_2–OH [4] CH(OH)=CH–CH_3

Q.3 The missing structures A and B in the reaction sequence :

$$R\text{–}CH_2\text{–}CH_2OH \xrightarrow[350^oC]{Al_2O_3} R\text{–}CH{=}CH_2 \xrightarrow[(ii)\ Zn.\ H_3O^+]{(i)\ O_3} RCHO + A \xrightarrow{Reduce} B$$

are given by the set :

[1] CH_3OH, RCOOH [2] Methanal, RCH_2OH [3] Ethanal, RCOOH [4] Methanal, RCHOHR'

Q.4 The missing structures A and B in the reaction sequence :

CH_3–CH=$CH_2 \xrightarrow{B_2H_6}$ A $\xrightarrow{H_2O_2 + NaOH}$ B are given by the set :

[1] CH_3–CH_2–CH_2–BH_2, CH_3–CH_2–CH_2OH [2] $(CH_3CHCH)_2BH$, CH_3–CH_2–CH_2OH

[3] $(CH_3)_2$CH–CH_2–BH_2, CH_3–CH(OH)–CH [4] $(CH_3$–CH_2–$CH_2)_3$ B, CH_3–CH_2–CH_2OH

Q.5 Which of the following reactions is an example of hydrogenolysis :

[1] C_2H_5–O–$C_2H_5 \xrightarrow{Dil.\ H_2SO_4} C_2H_5OH$ [2] $CH_3COOC_2H_5 \xrightarrow[C_2H_5OH]{Na\ +} C_2H_5OH$

[3] $CH_3COOH \xrightarrow{LiAlH_4} C_2H_5OH$ [4] $CH_3CHO \xrightarrow{2H} C_2H_5OH$

Q.6 The compounds A, B and C in the reaction sequence :

$CH_3CH_2OH \xrightarrow{HBr}$ A $\xrightarrow{Mg}$ B $\xrightarrow[(ii)\ H_3O^+]{(i)\ CH_3CHO}$ C are given by the set :

[1] CH_3CH_2Br, CH_3CH_2MgBr, $(CH_3)_3C$–OH

[2] CH_3CH_2Br, $(CH_3CH_2)_2Mg$, $(CH_3)_2CHCH_2OH$

[3] CH_3CH_2Br, CH_3CH_2MgBr, $CH_3CH(OH)CH_2CH_3$

[4] CH_3CHBr_2, $CH_3CH(MgBr)_2$, $CH_3CH(OH)CH_3$

Q.7 A primary alcohol on oxidation :

[1] Loses only one α–hydrogen [2] Loses no α–hydrogen

[3] Can lose both α–hydrogens [4] Can lose one α–hydrogen or both α–hydrogen atoms

Q.8 which of the following is not a common oxidant for alkanols :

[1] Heptavalent manganese [2] Hexavalent chromium

[3] Tetravalant manganese [4] Chromium trioxide in acetic acid

Q.9 In the industrial preparation of ethanol from starch by fermentation processes, a small amount of inferior liquor called "fusel oil" is obtained, This is chemically a mixture of :

[1] Propyl alcohol, isobutyl alcohol active amyl alcohol and excess of isopentyl alcohol

[2] Propyl alcohol, ispropyl alcohol and isopentyl alcohol

[3] Methanol, ethanol and 1–propanol

[4] Methanal + ethanal + propanal

Q.10 Which of the following statements is not true :

[1] Pure phenol is a colourless crystalline solid [2] Phenol has a low melting point

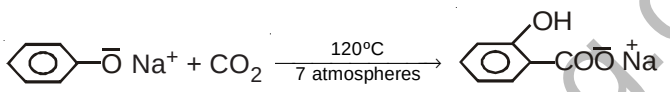
[3] Phenol has a very low boiling point [4] Phenol turns pink on exposure to air

Q.11 Select the wrong statement :

[1] K_a of phenol is of the order of 10^{-10} [2] Phenol is stronger acid than CH_3COOH

[3] Acetic acid is stronger acid than C_6H_5OH [4] Sodium phenate is soluble in water

Q.12 The reaction



is called :

[1] Elbs persulphate oxidation [2] Kolbe reaction

[3] Reimer–Tiemann reaction [4] Lederer–Manasse reaction

Q.13 Sodium phenate on heating with CO_2 under presssure gives mainly :

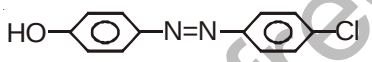
[1] o–hydroxybenzaldehyde [2] o–hydroxybenzyl alcohol

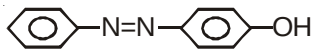
[3] o–hydroxybenzoic aicd [4] o–hydroxyphenol

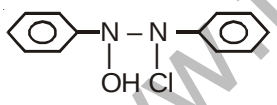
Q.14 Nitration of phenol with conc. nitric acid gives :

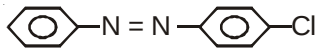
[1] o–nitrophenol [2] m–nitrophenol [3] p–nitrophenol [4] 2,4,6–trinitrophenol

Q.15 Phenol reacts with benzenediazonium chloride solution to from a compound of the structure :

[1] 

[2] 

[3] 

[4] 

Q.16 Which of the following sets of groups activates the ortho and para positios in electrophilic aromatic substitutions

[1] –OH, $–NO_2$, –CHO [2] $–NH_2$, $–NO_2$, $–\overset{\overset{O}{\|}}{C}–O–H$

[3] –OH, O^-, –OR [4] –OR, –C≡N, –Cl

Q.17 Deoxygenation of phenol can be achieved by distillation with :

[1] Raney nickel [2] Lithium aluminium hydride

[3] Sodium borohydride [4] Zinc dust

Q.18 Phenol and benzoic acid are distinguished by :

[1] Lucas reagent [2] Victor Meyer test

[3] Caustic soda [4] Sodium bicarbonate

Q.19 Phenol is distinguished from ethanol by the reaction with :

[1] Red litmus [2] Aqueous ferric chloride

[3] Alkaline β–naphthol [4] Sodium bicarbonate solution

Q.20 Phenol $\xrightarrow[\text{conc. } H_2SO_4]{NaNO_2}$ Green product $\xrightarrow{H_2O}$ red product $\xrightarrow{NaOH}$ Blue product :

this reaction is associated with the name of :

[1] Gattermann [2] Hofmann [3] Liebermann [4] Reimer–Tiemann

Q.21 The sulphur analogue of phenol is not called :

[1] Phenyl mercaptan [2] thiophenol

[3] Phenyl hydrogen sulphide [4] Benzenethiol

Q.22 Which of the following is not correctly matched :

[1] Phenol + $CHCl_3$ + NaOH $\xrightarrow{\text{Heat}}$ — Salicylaldehyde

[2] Phenol + Phthalic anhydride $\xrightarrow[H_2SO_4]{\text{Heat}}$ — Phenetole

[3] Phenol $\xrightarrow{Br_2 \text{ water}}$ — Tribromophenol

[4] Sodium phenate + CO_2 $\xrightarrow{\text{Heat, Pressure}}$ — Salicylic acid

Q.23 In the reaction sequence :


$\xrightarrow[350^oC]{NaOH}$ A $\xrightarrow{CH_3I}$ B $\xrightarrow{HI}$ C + D

A, B, C and D are given by the set :

[1] Sodium phenate, anisole, C_6H_5I, CH_3OH [2] Sodium phenate, phenetole, C_2H_5I, C_6H_5OH

[3] Sodium phenate, anisole, C_6H_5OH, CH_3I [4] Sodium phenate, phenetole, C_6H_5I, C_2H_5OH

Q.24 Anisole does not react with HI to from C_6H_5I and CH_3OH because :

[1] C_6H_5 is less stable [2] C_6H_5I has high molecular weight

[3] Aromatic carbon–oxygen bond is stronger [4] CH_3OH is more volatile than CH_3I

Q.25 Which of the following is a schotten–baumann reaction :

[1] $C_6H_5OH + CH_3COCl \rightarrow C_6H_5OCOCH_3 + HCl$

[2] $C_6H_5OH + C_6H_5COCl \rightarrow C_6H_5COOC_6H_5 + HCl$

[3] $3C_6H_5OH + PCl_5 + H_2O \rightarrow (C_6H_5)_3PO_4 + 5HCl$

[4] $C_6H_5OH + (CH_3CO)_2O \rightarrow C_6H_5OCOCH_3 + CH_3COOH$

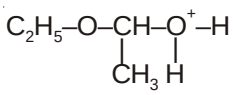
Q.26 The methoxy groups in natural compounds are estimated by reaction with :

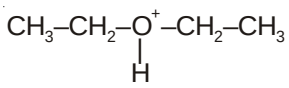
[1] H_2SO_4 [2] HF [3] HI [4] BF_3

Q.27 In the reaction sequence A $\xrightarrow{HBr}$ B $\xrightarrow{C_2H_5ONa}$ Ethoxyethane A and B are :

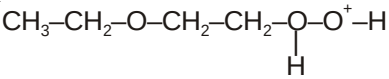
[1] C_2H_6, C_2H_5Br [2] CH_4, CH_3Br [3] $CH_2=CH_2$, C_2H_5Br [4] $CH\equiv CH$, $CH_2=CH–Br$

Q.28 Oxonium salt of ether has the structure :

[1] 

[2] 

[3] $(C_2H_5)_2O \rightarrow O$

[4] 

Q.29 In the Williamson synthesis of ethers given by the general equation :

$R–X + R'ONa \longrightarrow R–O–R'$ the yield from R–X follows the sequence :

[1] $CH_3 > 1^o > 2^o > 3^o$ [2] $CH_3 < 1^o < 2^o < 3^o$

[4] $CH_3 < 1^o < 2^o > 3^o$ [4] $CH_3 > 1^o < 2^o < 3^o$

Q.30 On Boiling with conc. HBr ethyl phenyl ether yields :

[1] Phenol and ethyl bromide [2] Bromobenzene and ethanol

[3] Phenol and ethane [4] Bromobenzene and ethane

Q.31 Which enzyme is used in the reaction :

$C_6H_{12}O_6 \longrightarrow 2C_2H_5OH + 2CO_2$

[1] Zymase [2] Invertase [3] Diastase [4] Maltase

Q.32 Which of the following property is not shown by $C_2H_5–O–C_2H_5$

[a] Iodoform test [2] Reaction with $CH_3–COCl$

[3] Action of HI [4] Action of $AgNO_3$

Correct answer is :

[1] b, c [2] a, d [3] a, b & c [4] c, d

Q.33 The product of the reaction $CH_3CH_2OH + Cu \xrightarrow{300^oC}$ is :

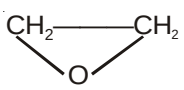
[1] C_6H_6 [2] CH_3COCH_3 [3] CH_3CHO [4] CH_3COOH

Q.34 Reaction : $CO + H_2$ (water gas) $+ H_2 \xrightarrow[Cr_2O_3 - ZnO]{673\,K,\ 300\,atm}$?

may be used for manufacture of :

[1] HCHO [2] HCOOH [3] CH_3OH [4] C_2H_5OH

Q.35 When ethanol vapours are passed through heated alumina (250ºC). The compound formed is :

[1] $CH_2=CH_2$ [2] 

[3] $CH_3–CH_2–O–CH_2CH_3$ [4] $CH_3–CH=CH_2$

Q.36 When the vapours of alcohol is passed over copper or zinc oxide then the following compound has no chances to be formed :

[1] Alkanal [2] Alkyne [3] Alkene [4] Alkanone

Q.37 For industrial method to produce methanol we choose :

[1] $CO + H_2$ [2] $CH_4 + H_2O$ [3] $HCHO + H_2$ [4] None

Q.38 –OH group of ethyl alcohol is neutral whereas acetic acid is acidic because :

[1] Ethyl alcohol molecule undergoes association

[2] Ethyl alcohol is covalent compound

[3] Acetic acid is an electrovalent compound

[4] In acetic acid OH group is attached to electronegative carbonyl group

Q.39 Lucas reagent is :

[1] Conc. HCl and anhydrous $ZnCl_2$ [2] Conc. HCl and hydrous $ZnCl_2$

[3] Conc. HNO_3 and hydrous $ZnCl_2$ [4] Conc. HNO_3 and anhydrous $ZnCl_2$

Q.40 Isopropyl alcohol is heated at 300ºC in presence of Cu catalyst to give :

[1] Acetone [2] Dimethyl ether [3] Acetaldehyde [4] Ethane

Q.41 Which statement is incorrect for $C_2H_5OC_2H_5$ is :

[1] It is an extracting solvent [2] It is an anaesthetic

[3] It is more reactive than alcohol [4] It shows dipole moment

Q.42 $C_2H_5–O–C_2H_5$ with cold HI forms :

[1] Only C_2H_5OH [2] Only C_2H_5I [3] Both the above [4] None of the above

Q.43 When ethanol is refluxed with conc. H_2SO_4 at 150–170ºC the resulting compound is :

[1] Ethylene [2] Ethyl hydrogen sulphate

[3] Diethyl ether [4] Acetaldehyde

Q.44 The high boiling point of ethanol (78.2ºC) compared to dimethyl ether (–23.6ºC) though both having the same molecular formula C_2H_6O is due to :

[1] Hydrogen bonding [2] Ionic bonding

[3] Co–ordinate Co–valent bonding [4] Resonance

Q.45 With which of the following compounds the grignard reagent should be treated in order to produce secondary alcohol :

[1] CH_3COCH_3 [2] CH_3CHO [3] CO_2 [4] HCHO

Q.46 C_2H_5OH can be differentiated from CH_3OH by :

[1] Reaction with HCl [2] Reaction with NH_3

[3] By iodoform test [4] By solubility in water

Q.47 The reaction between an alcohol and an acid is called :

[1] Esterification [2] Sponification [3] Hydrolysis [4] Hydrogenation

Q.48 How does alcohol react to litmus :

[1] Colour changes from red to blue [2] Colour changes from blue to red

[3] Colour is not effected [4] Not possible to predict

Q.49 When wine is put in air it becomes sour due to :

[1] Oxidation of C_2H_5OH [2] Reduction of C_2H_5OH

[3] Formation of $C_2H_5NH_2$ [4] Dissolution of CO_2

Q.50 Absolute alcohol can not be obtained by simple fractional distillation because :

[1] Pure C_2H_5OH is unstable

[2] C_2H_5OH forms H–bonding with water

[3] Boiling point of C_2H_5OH is very close to that of water

[4] Constant boiling azeotropic mixture is formed with water

Q.51 When vapours of an alcohol are passed over hot reduced copper, alcohol is converted into alkene, the alcohol is :

[1] Tertiary [2] Primary [3] Secondary [4] None

Q.52 Absolute alcohol is prepared from rectified spirit by :

[1] Steam distillation [2] Azeotropic distillation

[3] Simple distillation [4] Fractional distillation

Q.53 When glycerol is heated with $KHSO_4$, which is formed :

[1] Glyceric acid [2] Acrolein [3] glyceraldehyde [4] Dihydroxy acetone

Q.54 Ethylene glycol on oxidation with periodic acid give :

[1] Glyoxal [2] Oxalic acid [3] Formaldehyde [4] Glycolic acid

Q.55 23 gms of sodium of reaction with methyl alcohol gives :

[1] Half mole of H_2 [2] One mole of H_2 [3] One mole of O_2 [4] none

Q.56 Diethyl ether is prepared by passing ethyl alcohol vapours over a catalyst under high pressure and temperature. The catalyst is :

[1] SiO_2 [2] CuO [3] Al_2O_3 [4] Ag_2O

Q.57 Phenol is :

[1] A base weaker than ammonia [2] An acid stronger than carbonic acid

[3] An acid weaker than carbonic acid [4] A Neutral compound

Answer Key

Qus.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Ans.	3	3	2	4	2	3	4	3	1	3	2	2	3	4	2	3	4	4	2	3
Qus.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Ans.	3	2	3	3	2	3	3	2	1	1	1	2	3	3	3	2	1	4	1	1
Qus.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57			
Ans.	3	3	1	1	2	3	1	3	1	4	1	2	2	3	1	3	3			

Exercise # 3

Q.1 Tonics in general contain : **[MNR 1995]**

[1] Ether [2] Methanol [3] Ethanol [4] Rectified spirit

Q.2 Which will dehydrate easily : **[Roorkee 1995]**

[1] 3–methyl–2–butanol [2] Ethyl alcohol

[3] 2–methyl propane–2–ol [4] 2–methyl butanol–2

Q.3 Which of the following reacts with phenol to give salicylaldehyde after hydrolysis : **[MP PMT 1995]**

[1] Dichloromethane [2] Trichloromethane [3] Methyl chloride [4] None of these

Q.4 Which of the following is most soluble in water : **[MP PMT 1995]**

[1] Normal butyl alcohol [2] Isobutyl alcohol

[3] Tertiary butyl alcohol [4] Secondary butyl alcohol

Q.5 Ethyl alcohol exhibits acidic character on reacting with : **[MP PMT 1995]**

[1] Acetic acid [2] Sodium metal [3] Hydrogen iodide [4] Acidic potassium dichromate

Q.6 Phenol is obtained by heating aqueous solution of : **[MP PMT 1995]**

[1] Aniline [2] Benzene diazonium chloride

[3] Benzoic acid [4] None of these

Q.7 For phenol, which of the following statements is correct : **[MP PMT 1995]**

[1] It is insoluble in water

[2] It has lower melting point compared to aromatic hydrocarbons of comparable molecular weight

[3] It has higher boiling point than toluene

[4] It does not show acidic property

Q.8 Conversion of glucose into ethyl alcohol is made by : **[MP PMT 1995]**

[1] Acid [2] Enzyme [3] Hydroxylamine [4] Phenyl hydrazine

Q.9 The reaction of C_2H_5OH with H_2SO_4 does not give : **[MP PMT 1996]**

[1] Ethylene [2] Diethyl ether [3] Acetylene [4] Ethyl hydrogen sulphate

Q.10 The final product obtained by distilling ethyl alcohol with the excess of chlorine and $Ca(OH)_2$ is : **[MP PET 1996]**

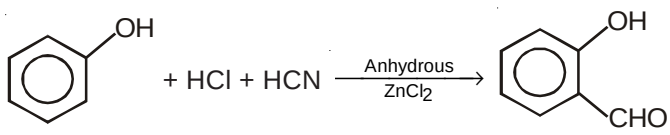
[1] CH_3CHO [2] CCl_3CHO [3] $CHCl_3$ [4] $(CH_3)_2O$

Q.11 Methyl alcohol (methanol), ethyl alcohol (ethanol) and acetone (propanone) were treated with iodine and sodium hydroxide solutions. Which substances will give iodoform test :

[1] Only ethyl alcohol [2] Only methyl alcohol and ethyl alcohol

[3] Only ethyl alcohol and acetone [4] Only acetone

Q.12 The following reaction : **[MP PET 1997]**



is known as :

[1] Perkin reaction [2] Gattermann reaction [3] Kolbe reaction [4] Gattermann–Koch reacton

Q.13 The alcohol which does not give a stable compound on dehydration is : **[MP PET 11997]**

[1] Ethyl alcohol [2] Methyl alcohol [3] n–propyl alcohol [4] n–butyl alcohol

Q.14 Phenol reacts with $CHCl_3$ and NaOH (at 340 K) to give : **[MP PMT 1997, CBSE 2002]**

[1] o–chlorophenol [2] Salicylaldehyde [3] Benzaldehyde [4] Chlorobenzene

Q.15 What amount of bromine will be required to convert 2g of phenol into 2,4,6–tribromophenol : **[MP PMT/PET 1998]**

[1] 4.00 [2] 6.00 [3] 10.22 [4] 20.44

Q.16 Carbolic acid is : **[MP PET/PMT 1998]**

[1] Phenol [2] Phenyl benzoate [3] Pheny lacetate [4] Salol

Q.17 The reagent used for the dehydration of an alcohol is : **[MP PET/PMT 1998]**

[1] Phosphorus pentachloride [2] Calcium chloride

[3] Aluminium oxide [4] Sodium chloride

Q.18 Which of the following reacts first with lucas reagent : **[MP PMT 1999]**

[1] C_3H_7OH [2] $(CH_3)_2CHOH$ [3] $(CH_3)_3COH$ [4] C_6H_5OH

Q.19 Which of the following is not true in case of reaction with heated copper at 300ºC : **[CPMT 1999]**

[1] Phenol $\rightarrow$ Benzyl alcohol [2] Primary alcohol $\rightarrow$ Aldehyde

[3] Secondary alcohol $\rightarrow$ Ketone [4] Tertiary alcohol $\rightarrow$ Olefin

Q.20 The correct order of boiling point for primary (1º), secondary (2º) and tertiary (3º) alcohol is : **[CPMT 1999 ; Raj PMT 2002]**

[1] 1º > 2º > 3º [2] 3º > 2º > 1º [3] 2º > 1º > 3º [4] 2º > 3º > 1º

Q.21 Which of the following is the most suitable method for removing the traces of water from ethanol : **[CPMT 1999]**

[1] Heating with Na metal [2] Passing dry HCl through it

[3] Distilling it [4] Reacting with Mg

Q.22 A compound A on oxidation gave acetaldehyde, then again on oxidation gave acid. After first oxidation it was reacted with ammoniacal $AgNO_3$, then silver mirror was produced. A is likely to be : **[Delhi PMT 1996]**

[1] Primary alcohol [2] Tertiary alcohol [3] Acetaldehyde [4] Acetone

Q.23 Maltose on hydrolysis gives : **[BHU 1996]**

[1] Mannose + glucose [2] Galactose + glucose

[3] Glucose [4] Mannose + fructose

Q.24 With oxalic acid, glycerol at 260ºC gives : **[BHU 1996]**

[1] Allyl alcohol [2] Glyceryl mono–oxalate

[3] Formic acid [4] Glyceraldehyde

Q.25 Phenol is used in the manufacture of : **[AIIMS 1996]**

[1] Bakelite [2] Polystyrene [3] Nylon [4] PVC

Q.26 **Assertion :** A triester of glycerol and plamitic acid on boiling with aqueous NaOH gives a solid cake having soapy touch :

Reason : Free glycerol is liberated which is a greasy solid : **[AIIMS 1996]**

[1] Both assertion and reason are true statements and reason is the correct explanation of assertion

[2] Both assertion and reason are true statements and reson is not the correct explanation of assertion

[3] Assertion is true but reason is a false statement

[4] Both asseration and reason are false statement

Q.27 Which of the following reaction shows industrial method of preparation of CH_3OH : **[CPMT 1996]**

[1] $CO + H_2 \xrightarrow[300^oC]{\text{Catalyst}}$ [2] $CH_3Cl + H_2O$ [3] $CH_3NH_2 + HNO_2$ [4] CH_3Br + aq. KOH

Q.28 The alcohol that produces turbidity immediately with $ZnCl_2$ + conc. HCl at room temperature : **[EAMCET 1997]**

[1] 1–hydroxybutane [2] 2–hydroxybutane

[3] 2–hydroxy–2–methylpropane [4] 1–hydroxy–2–methylpropane

Q.29 Which of the following explains the viscous nature of glycerol : **[JIPMET 1997]**

[1] Covalent bonds [2] Hydrogen bond [3] Vander Wall's forces [4] Ionic forces

Q.30 Which of the following statments is correct : **[BHU 1997]**

[1] Phenol is less acidic than ethyl alcohol [2] Phenol is more acidic than ethyl alcohol

[3] Phenol is more acidic than carboxylic acid [4] Phenol is more acidic than carboxylic acid

Q.31 Which gas is eliminated in fermentation : **[RPMT 1997]**

[1] O_2 [2] CO_2 [3] N_2 [4] H_2

Q.32 When phenol reacts with $CHCl_3$ and KOH, the product obtined would be : **[RPMT 1997]**

[1] Salicylaldehyde [2] p–hydroxy benzaldehyde

[3] Both (a) and (b) [4] Chloretone

Q.33 Absolute alcohol is : **[RPMT 1997]**

[1] 100% pure ethanol [2] 95% alcohol + 5% H_2O

[3] Ethanol + water + phenol [4] 95% ethanol + 5% methanol

Q.34 The reaction of $CH_3CH = CH$–C$_6$H$_4$–OH with HBr gives : **[IIT 1998]**

[1] CH_3–CHBrCH$_2$–C$_6$H$_4$–OH [2] CH_3CH_2CHBr–C$_6$H$_4$–OH

[3] $CH_3CHBrCH_2$–C$_6$H$_4$–Br [4] CH_3CH_2CHBr–C$_6$H$_4$–Br

Q.35 Benzenediazonium chloride on reaction with phenol in weakly basic medium gives : **[IIT 1998]**

[1] Diphenyl ether [2] p–hydroxyazobenzene

[3] Chlorobenzene [4] Benzene

Q.36 The most suitable method for the separation of a 1 : 1 mixture of ortho and para nitrophenols is : **[CBSE 1994, 99, CPMT 1997]**

[1] Distillation [2] Sublimation [3] Crystallization [4] Chromatography

Q.37 $R–OH + HX \rightarrow R–X + H_2O$

In the above reaction, the reactivity of different alcohols is : **[CPMT 1997]**

[1] Tertiary > Secondary > Primary [2] Tertiary < Secondary < Primary

[3] Tertiary < Secondary > Primary [4] Secondary < Primary < Tertiary

Q.38 The boiling point of glycerol is more than propanol because of : **[CPMT 1997, 2002]**

[1] Hydrogen bonding [2] Hybridisation [3] Resonance [4] All the above

Q.39 Which statement is not correct about alcohol : **[AFMC 1997]**

[1] Alcohol is lighter than water

[2] Alcohol evaporates quickly

[3] Alcohol of less no. of carbon atoms is less soluble in water than alcohol of high no. of carbon atoms

[4] All of these

Q.40 An organic compound A reacts with sodium metal and forms B, On heating with conc. H_2SO_4. A gives diethyl ether A and B are : **[AFMC 1998]**

[1] C_2H_5OH and C_2H_5ONa [2] C_3H_7OH and CH_3ONa

[3] CH_3OH and CH_3ONa [4] C_4H_9OH and C_4H_9ONa

Q.41 The reaction of aromatic acyl chloride and phenol in the presence of a base NaOH or pyridine is called : **[AFMC 1998]**

[1] Kolbe's reaction [2] Perkin's reaction

[3] Sandmayer's reaction [4] Schotten–Baumann reaction

Q.42 In the Liebermann's nitroso reaction, sequential changes in the colour of phenol occurs as : **[AFMC 1998; BHU 1999]**

[1] Brown or red $\rightarrow$ green $\rightarrow$ red $\rightarrow$ deep blue [2] Red $\rightarrow$ deep blue $\rightarrow$ green

[3] Red $\rightarrow$ green $\rightarrow$ white [4] White $\rightarrow$ red $\rightarrow$ green

Q.43 Which one of the following reactions does not yield an alkyl halide : **[EAMCET 1998]**

[1] Diethyl ether + Cl_2 [2] Diethyl ether + HI

[3] Diethyl ether and PCl_5 [4] Diethyl ether $\xrightarrow{\text{Reduction}}$ X $\xrightarrow{SO_2Cl_2}$

Q.44 The reaction between an alcohol and an acid with the elimination of water molecule is called : **[MH CET 1999]**

[1] Esterification [2] Saponification [3] Etherification [4] Elimination

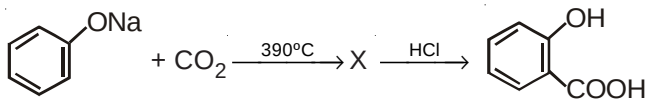
Q.45 3–pentanol is a : **[Raj PET 2002]**

[1] Primary alcohol [2] Secondary alcohol [3] Tertiary alcohol [4] None of these

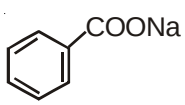
Q.46 Which of most acidic : **[Raj PET 1999]**

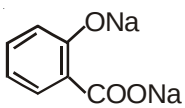
[1] H_2O [2] C_2H_5OH [3] CH_3OCH_3 [4] C_6H_5OH

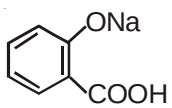
Q.47 The compound X in the reaction :

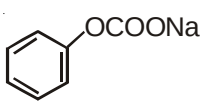


is : **[Roorkee 1999]**

[1] 

[2] 

[3] 

[4] 

Q.48 Condensation of phenol and phthalic anhydride gives : **[Raj PMT 1999]**

[1] Methyl orange [2] Phenol red [3] Salicylic acid [4] Phenolphthalein

Q.49 The role of conc. H_2SO_4 in the esterification process is : **[Raj PMT 1999]**

[1] Catalyst [2] Dehydrating agent [3] Hydrolysing agent [4] Dehydrating agent and catalyst

Q.50 Methanol and ethanol are distingusihed by the : **[MP PET 1999]**

[1] Action of HCl [2] Iodoform test [3] Solubility in water [4] Sodium

Q.51 When 2–ethylanthraquinol dissolved in a mixture of benzene and cyclohexanol is oxidised, the product is **[JIPMER 1999]**

[1] Ethanol [2] Hydrogen peroxide [3] Anthracene [4] None of these

Q.52 Phenol is heated with phthalic anhydride in the presence of concentrated H_2SO_4. The product gives pink colour with alkali. The product is : **[Karnataka CET (Med.) 2000]**

[1] Bakelite [2] Fluorescein [3] Salicylic acid [4] Phenolphthalein

Q.53 $A \xleftarrow[\Delta]{Cu} CH_3CH_2OH \xrightarrow[\Delta]{Al_2O_3} B$. A and B respectively are. **[Rajasthan (Engg./Med.) 2000]**

[1] Alkene, alkanal [2] Alkyne, alkanal [3] Alkanal, alkene [4] Alkene, alkyne

Q.54 The alcohol manufactured from water gas is : **[AFMC 2000]**

[1] Ethanol [2] Butanol [3] Methanol [4] Isobutanol

Q.55 Which of the following does not form phenol or phenoxide : **[AFMC 2000]**

[1] C_6H_5Cl [2] C_6H_5COOH [3] $C_6H_5N_2Cl$ [4] $C_6H_5SO_3Na$

Q.56 Which of the following differentiate between C_2H_5OH and CH_3OH : **[BHU 2000]**

[1] HCl [2] NH_3 [3] H_2O [4] I_2 + KOH

Q.57 Action of nitrous acid with ethylamine produces : **[BHU 2000]**

[1] Ethane [2] Ammonia [3] Ethyl alcohol [4] Nitroethane

Q.58 An unknown compound 'D', first oxidised to aldehyde and then acetic acid by a dilute solution of $K_2Cr_2O_7$ and H_2SO_4. The unknown compound 'D' is : **[BHU 2000]**

[1] CH_3CHO [2] CH_3CH_2OH [3] $CH_3CH_2CH_2OH$ [4] $CH_3CH_2CH_3$

Q.59 Carbinol is : **[Raj PMT 2000]**

[1] C_2H_5OH [2] CH_3OH [3] $(CH_3)_2CHOH$ [4] $CH_3CH_2CH(OH)CH_3$

Q.60 From which of the following tertiary butyl alcohol is obtained by the aciton of methyl magnesium iodide : **[MP PET 2000]**

[1] HCHO [2] CH_3CHO [3] CH_3COCH_3 [4] CO_2

Q.61 Reaction : $CH_3OH + O_2 \xrightarrow[Ag]{600^oC}$ product

The product is : **[RPET 2000]**

[1] $CH_2=C=O$ [2] $H_2C=O$ [3] C_2H_4 [4] C_2H_2

Q.62 $CH_3–CH=CH–CH(OH)–CH_3 \xrightarrow[\text{reagent}]{\text{Jone's}} X$,

Product X is : **[RPET 2000]**

[1] $CH_3CH_2CH_2CH(OH)CH_3$ [2] $CH_3CH=CHCOCH_3$

[3] Both the above [4] $CH_3CH_2CH_2COCH_3$

Q.63 Methyl alcohol is toxic. The reason assigned is : **[RPET 2000]**

[1] It stops respiratory track [2] It reacts with nitrogen and forms CN^- in the lungs

[3] It increases CO_2 content in the blood [4] It is a reduction product of formaldehyde

Q.64 **Assertion** (A) : Phenol is more reactive than benzene towards electrophilic substitution reaction.

Reason (R) : In the case of phenol, the intermediate carbocation is more resonance stabilized **[IIT 2000]**

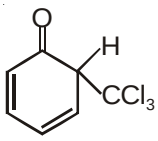
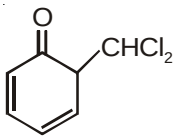
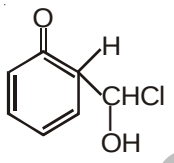
[1] Both A and R are true and R is a correct explanation of A

[2] Both A and R are true but R is not a correct explanation of A

[3] A is true but R is false

[4] Both A and R are false

Q.65 When phenol is reacted with $CHCl_3$ and NaOH followed by acidification, salicyldehyde is obtained. Which of the following species are involved in the above mentioned reaction as inter mediate : **[DCE 2000]**

[1]  [2]  [3]  [4] All of these

Q.66 Which of the following compound dehydrates most easily : **[BHU 2002]**

[1] R_3COH [2] R_2CHOH [3] CH_3CH_2OH [4] $CH_3CH_2CH_2OH$

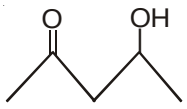
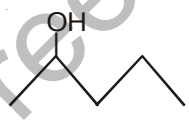
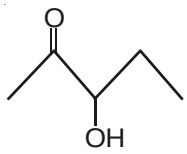
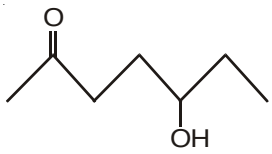
Q.67 The reaction of ethylene glycol with PI_3 gives : **[MP PMT 2000]**

[1] ICH_2CH_2I [2] $CH_2=CH_2$ [3] $CH_2=CHI$ [4] ICH=CHI

Q.68 The reaction of Lucas reagent is fast with : **[MP PMT 2000]**

[1] $(CH_3)_3COH$ [2] $(CH_3)_2CHOH$ [3] $CH_3(CH_2)_2OH$ [4] CH_3CH_2OH

Q.69 Which one of the following will most readily be dehydrated in acidic condtion : **[IIT Scr. 2000]**

[1]  [2]  [3]  [4] 

Q.70 Acetone on treatement with CH_3–Mg–I and on further hydrolysis gives : **[UPSEAT 2000]**

[1] Isopropyl alcohol [2] Primary alcohol [3] Acetic acid [4] 2–methyl –2–propanol

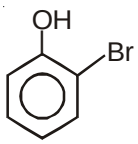
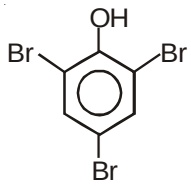
Q.71 When phenol reacts with ammonia in presence of $ZnCl_2$ at 300°C, it gives : **[AFMC 2001]**

[1] Primary amine [2] Secondary amine [3] Tertiary amine [4] Both (2) and (3)

Q.72 Maltose, on hydrolysis, gives : **[CPMT 2001]**

[1] Glucose [2] Fructose [3] Maltose [4] Mannose

Q.73 With excess bromine, phenol reacts to form : **[BHU 2001]**

[1]  [2]  [3]  [4] Mixture of (1) and (2)

Q.74 The compound that will react most readily with NaOH to form methanol is : **[IIT Scr. 2001]**

[1] $(CH_3)_4N^+I^-$ [2] CH_3OCH_3 [3] $(CH_3)_3S^+I^-$ [4] $(CH_3)_3Cl$

Q.75 When ethyl alcohol (C_2H_5OH) reacts with thionyl chloride, in the presence of pyridine, the product obtained is : **[AIIMS 2001]**

[1] $CH_3CH_2Cl + HCl$ [2] $C_2H_5Cl + HCl + SO_2$

[3] $CH_3CH_2Cl + H_2O + SO_2$ [4] $CH_3CH_2Cl + Cl_2 + SO_2$

Q.76 $Oil + NaOH(aq) \xrightarrow{\Delta} Glycerol + Soap$

Above reaction is called : **[UPSEAT 2001]**

[1] Saponification [2] Esterification [3] Hydrogenation [4] None of these

Q.77 **Assertion** (A) : Phenol is a weak acid than ethanol

Reason (R) : Groups with + M effect and –I effect decrease acidity at p–position **[AIIMS 2002]**

[1] Both A and R are true and the R is a correct explanation of A

[2] Both A and R are ture but R is not a correct explanation of A

[3] A is true but the R is false

[4] Both A and R are false

Q.78 Which of the following product is formed, when ether is exposed to air : **[AIIMS 2000]**

[1] Oxide [2] Alkanes [3] Alkenes [4] Peroxide of diethyl ether

Q.79 Electrophilic subsitution reaction in phenol take place at : **[Raj PMT 2002]**

[a] p–position [2] m–position [3] o–position [4] o– and p– position

Q.80 In the sequence of the following reactions

$$CH_3OH \xrightarrow{HI} CH_3I \xrightarrow{KCN} CH_3CN \xrightarrow{reduction} X \xrightarrow{HNO_3} Y$$

X and Y are respectively : **[MP PMT 2002]**

[1] $CH_3CH_2NH_2$ and CH_3CH_2OH [2] $CH_3CH_2NH_2$ and CH_3COOH

[3] CH_3CH_2OH and CH_3CHO [4] CH_3OCH_3 and CH_3CHO

Q.81 The reaction : $(CH_3)_3C–Br \xrightarrow{H_2O} (CH_3)_3–C–OH$ **[AIEEE 2002]**

[1] Elimination reaction [2] Substitution reaction

[3] Free radical reaction [4] Displacement reaction

Q.82 The reaction : $C_2H_5OH + SOCl_2 \xrightarrow{Pyridine} C_2H_5Cl + SO_2 + HCl$ **[AIIMS 2002]**

is known as :

[1] Kharasch effect [2] Darzen's procedure

[3] Williamson's synthesis [4] Hunsdieker synthesis reaction

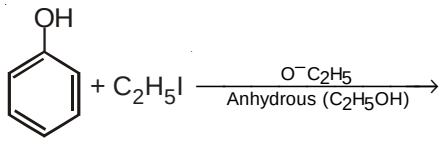
Q.83 Glucose $\rightarrow$ ethyl alcohol in this reaction enzyme is : **[Raj PMT 2002]**

[1] Zymase [2] Invertase [3] Maltase [4] Diastase

Q.84 During dehydration of alcohols to alkenes by heating with conc. H_2SO_4 the initiation step is : **[AIEEE 2003]**

[1] Protonation of alcohol molecule [2] Formation of carbocation

[3] Elimination of water [4] Formation of an ester

Q.85  **[IIT Scr. 2003]**

[1] $C_6H_5OC_2H_5$ [2] $C_2H_5OC_2H_5$ [3] $C_6H_5OC_6H_5$ [4] C_6H_5I

Q.86 Propan–1–ol can be prepared from propene by : **[AIIMS 2003]**

[1] H_2O / H_2SO_4 [2] $Hg(OAc)_2$ / H_2O followed by $NaBH_4$

[3] B_2H_6 followed by H_2O_2 [4] CH_3CO_2H / H_2SO_4

Q.87 Cresol has : **[CPMT 2003]**

[1] Alcoholic – OH [2] Phenolic – OH [3] – COOH [4] –CHO

Q.88 Phenol and benzoic acid is distinguished by : **[BHU 2003]**

[1] NaOH [2] $NaHCO_3$ [3] Na_2CO_3 [4] H_2SO_4

Q.89 Which compound has the highest boiling point : **[MP PET 2003]**

[1] Acetone [2] Diethyl ether [3] Methanol [4] Ethanol

Q.90 When phenol is heated with phthalic anhydride in concentrated sulphuric acid and the hot reaction mixture is poured into a dilute solution of sodium hydroxide, the product formed is : **[MP PET 2003]**

[1] Alizarin [2] Methyl orange [3] Fluorescein [4] Phenolpthalein

Q.91 4–chloro–3, 5–dimethyl phenol is called : **[Karanataka CET 2003]**

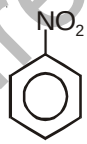
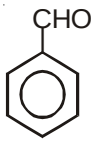
[1] Chloramphenicol [2] Paracetamol [3] Barbital [4] Dettol

Q.92 $CH_2=CH_2 + B_2H_6 \xrightarrow[H_2SO_4]{NaOH}$ Product, Product is :

[1] CH_3CH_2CHO [2] CH_3CH_2OH [3] CH_3CHO [4] None of the above

Q.93 $A + CCl_4 + KOH \rightarrow$ Salicylic acid

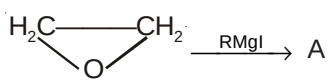
'A' in above reaction is : **[Raj PMT 2003]**

[1]  [2]  [3]  [4] 

Q.94 Alcohol which gives red colour with Victor Meyer test is : **[Raj PMT 2003]**

[1] C_2H_5OH [2] $CH_3–CH(OH)–CH_3$ [3] $C(CH_3)_3OH$ [4] None of the above

Q.95 The product 'A' in the following reaction is :

 **[MP PMT 2003]**

[1] RCHOHR [2] RCHOH . CH_3 [3] RCH_2 . CH_2OH [4] 

Q.96 In the reaction $Ar–OH + RX \xrightarrow{Alkali}$ A

A is : **[MP PET 1994]**

[1] An aldehyde [2] An aryl chloride [3] An ether [4] A ketone

Q.97 When a mixture of ethanol and methanol is heated in the presence of concentrated H_2SO_4, the resulting organic product or products is / are : **[Manipal MEE 1995]**

[1] $CH_3OC_2H_5$ [2] CH_3OCH_3 and $C_2H_5OC_2H_5$

[3] $CH_3OC_2H_5$ and CH_3OCH_3 [4] $CH_3OC_2H_5$, CH_3OCH_3 and $C_2H_5OC_2H_5$

Q.98 In Williamson's synthesis, ethoxyethane is prepared by : **[MP PMT 1995]**

[1] Passing ethanol over heated alumina [2] Sodium ethoxide with ethyl bromide

[3] Ethyl alcohol with sulphuric acid [4] Ethyl iodide and dry silver oxide

Q.99 Dimethyl ether when heated with excess HI gives : **[CPMT 1996]**

[1] CH_3I and CH_3OH [2] CH_3I and H_2O

[3] $C_2H_6 + CH_3I$ and CH_3OH [4] CH_3I and HCHO

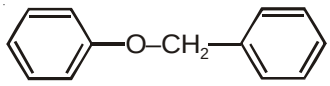
Q.100 Methyl–terbutyl ether on heating with HI of one molar concentration gives : **[MP PET 1997]**

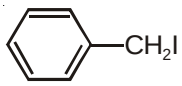
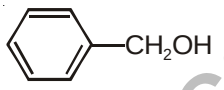
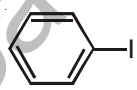
[1] $CH_3I + (CH_3)_3COH$ [2] $CH_3OH + (CH_3)_3Cl$

[3] $CH_3I + (CH_3)_3Cl$ [4] None of the above

Q.101 The reaction of CH_3MgI with acetone and hydrolysis of the resulting product gives : **[MP PMT 1999]**

[1] $CH_3CH_2CH_2OH$ [2] $CH_3CH_2CH_2CH_2OH$ [3] $(CH_3)_2CHOH$ [4] $(CH_3)_3COH$

Q.102 The ether  when treated with HI produces : **[IIT 1999]**

[1]  [2]  [3]  [4] None of these

Q.103 Ethyl chloride is converted into diethyl ether by : **[CBSE 1999]**

[1] Wurtz synthesis [2] Grignard reaction [3] Perkin's reaction [4] Williamson's synthesis

Q.104 Which of the following compounds will react with $NaHCO_3$ solution to give sodium salt and carbon dioxide : **[CBSE 1999]**

[1] Phenol [2] n–hexanol [3] Acetic acid [4] Both (1) and (2)

Q.105 Heating mixture of ethyl alcohol and acetic acid in presence of conc. H_2SO_4 produces a fruity smelling compound. This reaction is called : **[AIIMS 1996]**

[1] Neutralisation [2] Ester hydrolysis [3] Esterification [4] Williamson's synthesis

Q.106 When ether is reacted with O_2. It undergoes explosion due to : **[CPMT 1996]**

[1] Peroxide [2] Acid [3] Ketone [4] TNT

Q.107 Which of the following is obtained when $C_2H_5OC_2H_5$ is heated with conc. H_2SO_4 : **[CPMT 1996]**

[1] $CH_2=CH_2$ [2] C_2H_5OH [3] $C_2H_5SO_4H$ [4] $CH_3CH_2CH_2CH_3$

Q.108 In which of the following reaction, phenol or sodium phenoxide is not formed : **[CPMT 1996]**

[1] $C_6H_5N_2Cl$ + alc. KOH [2] C_6H_5OCl + NaOH

[3] $C_6H_5N_2Cl$ + aq. NaOH [4] $C_6H_5NNCl \xrightarrow[\Delta]{H_2O}$

Q.109 The oxidation product of 2–proponol with hot conc. HNO_3 is : **[JIPMER 1997]**

[1] Ethanoic acid [2] Propanone [3] Propanal [4] None of these

Q.110 Isopropyl alcohol on oxidation gives : **[RPMT 1997]**

[1] Acetone [2] Acetaldehyde [3] Ether [4] Ethylene

Q.111 Highest boiling point is of : **[RPMT 1997]**

[1] Ethanol [2] Ether [3] Alkane [4] Aldehyde

Q.112 The compound which does not react with sodium is : **[CBSE 1994]**

[1] C_2H_5OH [2] $CH_3–O–CH_3$ [3] CH_3COOH [4] $CH_3–CHOH–CH_3$

Q.113 $R–CH_2–CH_2OH$ can be converted into RCH_2CH_2COOH. The correct sequence of the reagents is **[AIIMS 1997]**

[1] PBr_3, KCN, H_3O^+ [2] PBr_3, KCN, H_2 [3] HCN, PBr_3, H^+ [4] KCN, H^+

Q.114 Phenylmethanol can be prepared by reducing the benzaldehyde with : **[CBSE 1997]**

[1] CH_3Br [2] Zn and HCl [3] CH_3Br and Na [4] CH_3I and Mg

Q.115 When anisole is heated with HI, the product is : **[CET Pune 1998]**

[1] Phenyl iodide and methyl idodie [2] Phenol and methanol

[3] Phenyl iodide and methanol [4] Methyl iodide and phenol

Q.116 The ether that undergoes electrophilic substitution reaction is : **[JIPMER 2001]**

[a] $CH_3OC_2H_5$ [2] $C_6H_5OCH_3$ [3] CH_3OCH_3 [4] $C_2H_5OC_2H_5$

Q.117 When ether is exposed in air for sometime an explosive substance produced is : **[RPMT 2002]**

[1] Peroxide [2] TNT [3] Oxide [4] Superoxide

Q.118 Ether which is liquid at room temperature is : **[BVP 2002]**

[1] $C_2H_5OCH_3$ [2] CH_3OCH_3 [3] $C_2H_5OC_2H_5$ [4] None of these

Q.119 In the following reaction **[MP PMT 2002]**

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

[1] Ethane [2] Ethylene [3] Butane [4] Propane

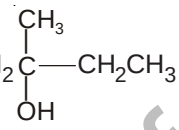
Q.120 An ether is more volatile than an alcohol having the same molecular formula. This is due to : **[AIEEE 2003]**

[1] Dipolar character of ethers [2] Alcohols having resonance structures

[3] Inter–molecular hydrogen bonding in ethers [4] Inter–molecular hydrogen bonding in alcohols

Q.121 Among the following compounds which can be dehydrated very easily is : **[AIEEE 2004]**

[1] $CH_3CH_2CH(CH_3)CH_2CH_2OH$ [2] $CH_3CH_2CH_2CH(OH)CH_3$

[3]  [4] $CH_3CH_2CH_2CH_2CH_2OH$

Q.122 Choose the correct molecular formula of the following molecules : **[VITEEE 2005]**

(i) Propanone (ii) Propanal and (iii) n-propanol

[1] CH_3COCH_3, $CH_3CH_2CH_2OH$ and CH_3CH_2CHO [2] $CH_3CH_2CH_2OH$, CH_3COCH_3 and CH_3CH_2CHO

[3] CH_3CH_2CHO, CH_3COCH_3 and $CH_3CH_2CH_2OH$ [4] CH_3COCH_3, CH_3CH_2CHO and $CH_3CH_2CH_2OH$

Q.123 The following reaction is an example $RCOOR' + R"OH \xrightarrow{H^+} RCOOR" + R'OH$ **[VITEEE 2005]**

[1] Esterification [2] Saponification [3] Hydrolysis [4] Transesterification

Q.124 An organic compound, C_3H_6O does not give a precipitate with 2,4-dinitrophenyl hydrazine reagent and does not react with metallic sodium. It could be **[VITEEE 2005]**

[1] $CH_3 — CH_2 — CHO$ [2] $CH_3 — CO — CH_3$ [3] $CH_2 = CH — CH_2OH$ [4] $CH_2 = CH — O — CH_3$

Q.125 The best reagent to convert pent-3-en-2-ol into pent-3-in-2-one is **[AIEEE 2005]**

[1] Acidic dichromate [2] Acidic permanganate

[3] Pyridinium chloro-chromate [4] Chromic anhydride in glacial acetic acid

Q.126 Acid catalyzed hydration of alkenes except ethene leads to the formation of **[AIEEE 2005]**

[1] Primary alcohol [2] Secondary or tertiary alcohol

[3] Mixture of primary and secondary alcohols [4] Mixture of secondary and tertiatry alcohols

Q.127 Methylphenyl ether can be obtained by reacting **[J & K 2005]**

[1] Phenolate ions ane methyl iodide [2] Methoxide ions and bromobenzene

[3] Methanol and phenol [4] Bromo benzene and methyl bromide

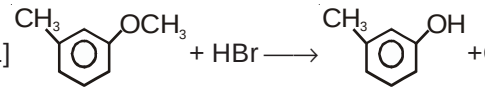
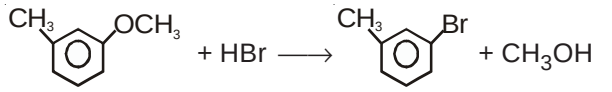
Q.128 The best method to prepare cyclohexene from cyclohexanol is by using - **[IIT 2005]**

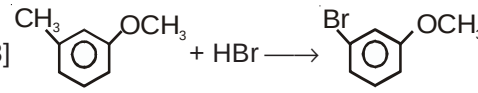
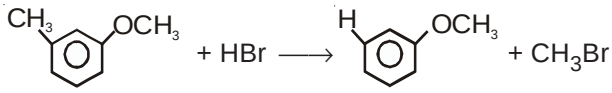
Conc. HCl + $ZnCl_2$ [2] Conc. H_3PO_4 [3] HBr [4] Conc. HCl

Q.129 Which of the following compound is most acidic ? **[BCECE 2005]**

[1] CH_4 [2] C_2H_6 [3] $CH \equiv CH$ [4] C_2H_5OH

Q.130 Which of the following reaction is correctly represented - **[Orissa JEE 2005]**

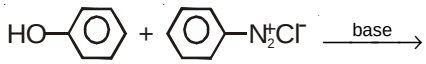
[1]  [2] 

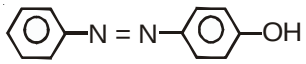
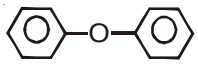
[3]  [4] 

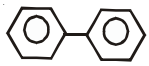
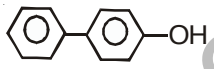
Q.131 Tertiary butyl alcohol gives tertiary butyl chloride on treatment with - **[Orissa JEE 2005]**

[1] Conc. HCl/anhydrous $ZnCl_2$ [2] KCN

[3] NaOCl [4] Cl_2

Q.132  **[DPMT 2005]**

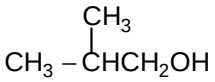
[1]  [2] 

[3]  [4] 

Q.133 The general moleculat formula, which represents the homologous series of alkanols is - **[CPMT 2006]**

[1] $C_nH_{2n}O$ [2] $C_nH_{2n+1}O$ [3] $C_nH_{2n+2}O$ [4] $C_nH_{2n}O_2$

Q.134 Among the following the one that gives positive iodoform test upon reaction with I_2 abnd NaOH is - **[AIEEE 2006]**

[1] $C_6H_5CH_2CH_2OH$ [2]  [3] $PhCHOHCH_3$ [4] $CH_3CH_2CH(OH)CH_2CH_3$

Q.135 In the following sequence of reactions, **[AIEEE 2007]**

$$CH_3CH_2OH \xrightarrow{P+I_2} A \xrightarrow[Ether]{Mg} B \xrightarrow{HCHO} C \xrightarrow{H_2O} D$$

the compound 'D' is :

[1] n-propyl alcohol [2] propanal [3] butanal [4] n-butyl alcohol

Answer Key

Qus.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Ans.	3	4	2	3	2	2	3	2	3	3	3	2	2	2	3	1	3	3	1	1
Qus.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Ans.	4	1	3	1	1	3	1	3	2	2	2	3	1	2	2	1	1	1	3	1
Qus.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	4	1	1	1	2	4	2	4	4	2	1	4	3	3	2	4	3	2	2	3
Qus.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Ans.	2	2	2	1	2	1	2	1	1	4	1	1	3	1	2	1	4	4	4	1
Qus.	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Ans.	2	2	1	1	1	3	2	2	4	4	4	2	1	1	3	3	4	2	2	1
Qus.	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Ans.	4	1	4	3	3	1	3	2	2	1	1	2	1	2	4	2	1	3	1	4
Qus.	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135					
Ans.	3	4	4	4	3	2	1	2	4	1	1	1	3	3	1					