Arts Commerce and Science college Bodwad, Dist: Jalgaon

Department of Chemistry

Question Bank

F.Y.B.Sc -Sem-I- 2020-21

Chemistry -II- Organic and Inorganic chemistry

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1. Chloroethane reacts with Na in Presence of dry ether. The Product is

   (a) Ethane (b) Propane **(c) Butane** (d) Ethene

2. Which represents an alkyne?

   (a) $\boldsymbol{C_5\ H_{10}}$ (b) $C_5\ H_{12}$ (c) $C_3\ H_8$ (d) $C_4\ H_6$

3. Halogenation of alkane is an example of ?

   (a) Electrophilic Substitution

   (b) **Nucleophilic substitution**

   (c) Free redical substitution

   (d) Addition reaction

4. When ethyl iodide and propyl iodide react with Sodium in presence of ether they form ?

   (a) Only One alkane
   (b) Mixture of two alkane
   (c) Mix ture of three alkane
   (d) **Mix ture of four alkane**

5. $CH_3\ CH_2\ OH + CH_3\ MgBr$ ----- Pr*oduct* .

Product in above reaction is

   (a) Methane (b) Ethane **(c) Propane** (d) Butane

6. LPG is a mixture of?

   (a) $CH_4 + C_2\ H_6$ (b) $\boldsymbol{C_3\ H_8 + C_4\ H_{10}}$ (c) $C_2\ H_4 + C_2\ H_2$ (d) $C_6\ H_6 + C_6\ H_{12}$

7. As the number of branches in a chain increases the boiling point of alkane.....

   a) Increases
   b) Decreases
   c) Remain same
   d) May increase or decrease

8. Give IUPAC name of $(CH_3)_2 - C - (C_2\ H_5)_2$

(a) 2- methy 2-ethylbutane (b) Dimethyl Diethyl methane

(c) **3, 3- dimethyl pentane** (d) 2, 2- diethyl propane

9. Alkene usually show which type of reaction ?

(a) Substitution (b) **Addition** (c) Elimination (d) Rearrangement

10. when 3-phenyl propene reacts with HBr in the presence of peroxide, the major product form is

(a) **2-bromo-1-phenyl propane** (b) 1,2-dibromo-3-phenyl propane

(c) 3-(0-bromo phenyl)propane (d) 1-bromo-3-phenyl propane

11. The addition of *HBr* to pent-2-ene gives

(a) 2-bromo pentane (b) **3-bromo pentane**

(c) Mixture of(A) and (B) (d) 1- bromopentane

12. Addition of HCl to propene in presence of peroxide gives

(a)1-Chloropropane (b) 2-Chloropropane

(c) 3-Chloropropane (d) Chloropropene peroxide

13. Ethylene dibromide on heating with alc.KOH gives mainly.

(a) Ethane (b) Ethylene **(c) Acetylene** (d) Ethyl bromide

14. Reduction of acetylene in presence of Ni/Pd gives

(a**) Ethane** (b) Ethene (c) Ethanol (d) Ethanaime

15. Point out the wrong statement in relation to the structure of Benzene.

a. **It forms only one monosubstitated derivative**
b. The C-C bond lenght is benzene is uniformly1.397 A0
c. It is a resonance hybrid of a number of canonical forms
d. It has three delocalised p- molcular orbitals

16. Which is not aromatic hydrocarbon?

(a) Benzene (b) Toluene (c) **phenol** (d) Napthalene

17. Benzene reacts with CH_3COCl in presence of $AlCl_3$ to give

(a) C_6H_5CI (b) C_6H_5COCl (c) $\boldsymbol{C_6H_5COCH_3}$ (d)$C_6H_5CH_3$

18.Nitration of Benzene is

(a) **Electrophilic Substitution** (b) Nucleophelic Substitution

(c) Electrophilic addition (d) Free radical Substitution

19. Match the column AND select the correct match

column I	column II
(A) Benzene	(p) Wurtz reaction of $C_2 H_5 Cl$
(B) Ethene	(q) Evolves H_2 when heated with sodium metal
(C) Ethyne	(r) Dehydration of ethanol
(D) Butane	(s) Electrophilic substitution

a) (B)-S (A)-r (C)-q (D)-p
b) (C)-S (B)-r (A)-q (D)-p
c) (D)-S (B)-r (C)-q (A)-p
d) (A)-S (B)-r (C)-q (D)-p

21 The process of converting alkyl halides into alcohols involves_____.

(a) addition reaction
(b) **substitution reaction**
(c) dehydrohalogenation reaction
(d) rearrangement reaction

22. Give IUPAC name of the compound given below.

CH_3-CH(OH)-CH-CH_2-CH(Cl)-CH_3

a) 2-Chloro-5-hydroxyhexane
b) 2-Hydroxy-5-chlorohexane
c) **5-Chlorohexan-2-ol**
d) 2-Chlorohexan-5-ol

23. Which of the following alcohols will yield the n-propyl chloride on reaction with concentrated HCl at room temperature

(i) $CH_3CH_2—CH_2—OH$

(ii) $CH_3CH_2—\underset{\displaystyle CH_3}{\underset{|}{CH}}—OH$

(iii) $CH_3CH_2—\underset{\displaystyle CH_3}{\underset{|}{CH}}—CH_2OH$

(iv) $CH_3CH_2—\overset{\displaystyle CH_3}{\overset{|}{\underset{\displaystyle CH_3}{\underset{|}{C}}}}—OH$

24. Which reagent will you use for the following reaction?

CH3CH2CH2CH3 → CH3CH2CH2CH2Cl + CH3CH2CHClCH3

a) **Cl2/UV light**

b) NaCl + H2SO4

c) Cl2 gas in dark

d) Cl2 gas in the presence of iron in dark

25. Arrange the following compounds in increasing order of their boiling points

(b) < (a) < (c)

(a) < (b) < (c)

(c) < (a) < (b)

(c) < (b) < (a)

26. Which of the following is an example of vic-dihalide?

(i) Dichloromethane

(ii**) 1,2-dichloroethane**

(iii) Ethylidene chloride

(iv) Allyl chloride

27. The position of –Br in the compound in CH3CH==CHC(Br)(CH3)2 can be classified as _____.

a) Allyl

b) Aryl

c) **Vinyl**

d) Secondary

28. Ethylidene chloride is a/an _____.

(a) vic-dihalide

(b) gem-dihalide

(c) allylic halide

(d) vinylic halide

29. What should be the correct IUPAC name for diethylbromomethane?

(a) 1-Bromo-1,1-diethylmethane

(b) **3-Bromopentane**

(c) 1-Bromo-1-ethylpropane

(d) 1-Bromopentane

30. Which of the following compounds are gem-dihalides?

(a) **Ethylidene chloride**

(b) Ethylene dichloride

(c) Methyl chloride

(d) Benzyl chloride

31. Which of the following are secondary bromides?

a) (CH3)2 CHBr

b) (CH3)3C CH2Br

c) CH3CH(Br)CH2CH3

d) (CH3)2CBrCH2CH3

32. Which of the following compounds can be classified as aryl halides**?**

a) p-ClC6H4CH2CH(CH3)2

b) p-CH3CHCl(C6H4)CH2CH3

c) o-BrH2C-C6H4CH(CH3)CH2CH3

d) C6H5-Cl

e) Both a and d

33. Alkyl halides are prepared from alcohols by treating with

a) HCl + ZnCl2

b) Red P + Br2

c) H2SO4+ KI

d) **from a and b**

34. The major organic product in the reaction, CH3 — O — CH(CH3)2 + HI → product: is/are

(*a*) $CH_3I + (CH_3)_2CHOH$

(*b*) $CH_3OH + (CH_3)_2CHI$

(*c*) $ICH_2OCH(CH_3)_2$

(*d*) $CH_3 - O - \underset{\displaystyle I}{\overset{\displaystyle |}{C}} - (CH_3)_2$

35. Phenols are more acidic than alcohols because

(a**) Phenoxide ion is stabilised by resonance**

(b) Phenols are more soluble in polar solvents

(c) Phenoxide ion does not exhibit resonance

d) Alcohols do not lose H atoms at all

36. Which of the following reagents cannot, be used to oxidise primary alcohols to aldehydes?

(a) CrO_3 in anhydrous medium

(b) **$KMnO_4$ in acidic medium**

(c) Pyridinium chlorochromate

(d) Heat in the presence of Cu at 573 K

37. Which of the following alcohols will give the most stable carbocation during dehydration?

(a) 2-methyl-1-propanol

(b) 2**-methyl-2-propanol**

(c) 1-Butanol

(d) 2-Butanol

38. $(CH_3)_3C-CH_2OH \xrightarrow[170^\circ C]{Conc.\ H_2SO_4} X$ in the reaction X is------

A. $(CH_3)_2C = CHCH_3$

(b) $CH_3C = CH$

(c) $(CH_3)_2CHCH_2CH_3$

(d) $CH_3 - CH_2 - \underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}} = CH_2$

39. Propanone on reaction with alkyl magnesium bromide followed by hydrolysis will produce

(a) primary alcohol

(b) secondary alcohol

(c**) tertiary alcohol**

(d) carboxylic acid

40. The suitable reagent for the conversion of $RCH_2OH \rightarrow RCHO$ is

(a) **$K_2Cr_2O_7$**

(b) CrO_3

(c) $KMnO_4$

(d) O2

41. In the following reaction sequence Z is

$$CH_3 - \underset{\displaystyle OH}{\overset{\displaystyle |}{CH}} - CH_3 \xrightarrow{[O]} Y \xrightarrow[H^+/H_2O]{CH_3MgBr} Z$$

(X)

a) butan-1-ol
b) butan-2-ol
c) **2-methylpropan-2-ol**
d) 1, 1-dimethylethanol

42. Which of the following is phenol?

(a) Cresol

(b) Catechol

(c) Benzenol

(d) All of these

43, Which of the following alcohols gives 2-butene on dehydration by conc. H_2SO_4?

(a) 2-methyl propene-2-ol

(b) 2-methyl 1 -propanol

(c) **Butan-2-ol**

(d) Butane 1-ol

44. Which of the following reagents cannot, be used to oxidise primary alcohols to aldehydes?

(a) CrO_3 in anhydrous medium

(b) **$KMnO_4$ in acidic medium**

(c) Pyridinium chlorochromate

(d) Heat in the presence of Cu at 573 K

45. Strength of an acid depends on

a) hydrolysis
b) concentration of OH^- ions
c) concentration of H+ ions
d) no. of moles of base used for neutralisation

46. Which of the following are Lewis acids?

a) PH3 and BCl3
b) AlCl3 and SiCl4
c) PH3 and SiCl4
d) BCl3 and AlCl3

47.What is the conjugate base of OH–?

a) O2
b) H2O
c) O–
d) O-2

48. The pH of rain water is approximately

a) 7.5

b) 6.5
c) 7.0
d) 5.6

49. Which of the following is a Lewis acid?

a) NaH
b) NF3
c) PH3
d) B(CH3)3

50. Which of the following aqueous solution will be the best conductor of electricity?

a) NH_3

b) CH_3COOH

c) HCl

d) $C_6H_{12}O_6$

51. Find the conjugate acid of NH_2^-

a) NH_3

b) NH_4OH

c) NH_4^+

d) NH_2^-

52. Amines behave as

a) Lewis acids
b) Lewis base
c) aprotic acid
d) neutral compound

53. Which of the following does not show resonance effect?
a) Benzene
b) Toluene
c) Aniline
d) Dimethylamine

54. An isomer of ethanol is------
a) Methanol
b) Dimethyl ether
c) Diethyl ether
d) Ethylene glycol

55. Organic reaction are slow because these reactions are_____
a) Ionic
b) Non ionic
c) Between covalent compounds
d) Accompanied by side reaction

56.Electromeric effect is due to-------

a) Electronegative elements
b) Double bonds
c) Triple bond
d) All of these

57.Methane reacts with excess of chlorine in presence of diffused sunlights to give
a) Chloroform
b) Carbon tetra chloride
c) Methyl chloride
d) Methylene chloride

58.Sturated hydrocarbon mainly undergo---
a) Addition reaction
b) Substitution reaction
c) Elimination reaction
d) Polymerisation

59.Which hydrocarbon is formed by action of sodium on iodoethane?
a) Methane
b) Ethane
c) Ethene
d) Butane

60.1,4-dibromobutane on reaction with Zn in the presence of NaI catalyst forms
a) Cyclopentane
b) Cyclobutane
c) 1,3-butadiene
d) Cyclopropane

61.Haloalkane are _____derivative of alkane
a) Halogen
b) Hydroxy
c) Carboxyl
d) Chloro

62. But-1-ene on treatment with HBr forms
a) Sec.butyl bromide
b) Isobutyl bromide
c) 1-bromobutane
d) 2-butyl bromide

63. propene undergo addition of Br2 to give
a) 1-bromobutane
b) 2-bromobutane
c) 1,2-dibromobutane
d) 2-bromopropane

64. which of the following are not example of gem. Dihalides
a) 2,2- Dichoropropane
b) 2,2-dibromobutane
c) 1,2 -dichlorobutane

d) 3,3-dobomopenane

65. which of the following is tertiary alcohol halide
   a) CH_3-CH_2-CH_2-CH_2-CH(OH)-CH_3
   b) CH_3-CH_2-CH_2-OH
   c) **$(CH_3)_3$ C(OH)**
   d) $(CH_3)_2$ CH-CH_2-OH

66.The primary alcohol can be obtained by the action of RMgX with
   a) Formaldehyde
   b) Acetaldehyde
   c) Acetone
   d) Water

67. A tertiary alcohol can be prepared obtained when RMgX reacts with__-____
   a) Ethanol
   b) Ethanal
   c) Propanal
   d) Propanone

68. Alkene are prepared from alcohols by
   a) Oxidation
   b) Hydration
   c) Reduction
   d) Addition

69. Ethers are the alkoxy derivatives of _____
   a) Alkanes
   b) Alkenes
   c) Alcohols
   d) Aldehydes

70. In continuous etherification process alcohol is reacted with
   a) Dil H2SO4
   b) Dil HCl
   c) Conc.H2SO4
   d) Conc.HCl

71. In the reaction of an ether with Hot HI, two same products are obtained then the ethers may be,
   a) Symmetrical
   b) Unsymmetrical
   c) Both symmetrical
   d) and unsymmetrical
   e) None of the above

72.In the hydrolysis of ethers the H2SO4 acts as,
   a) Hydrolysis agents
   b) Dehydrating agents
   c) Catalyst

d) Oxidizing agents

73.Methoxy methane on reaction with cold HI froms

a) CH_3I only
b) CH_3OH and CH_3I
c) CH_3OH and H2O
d) CH_3I and H2O

74.ethers reacts with cold conc, H2SO4 to form

a) Oxonium salts
b) Alkenes
c) Alkoxides
d) Zwitter ions

75. Diethyl ethers on heating with excess conc. HI gives

a) Iodomethane
b) 2-Iodo propane
c) Iodo ethane
d) 1-iodo propane

76.The strength of an acid is depending on is-

a) Acidity
b) Basicity
c) Degree of dissociation
d) Molecular weight

77.from the following acids , which is dibasic acids

a) HCl
b) H2SO4
c) HClO4
d) HNO3

78.Oswalds dilution law is applicable to

a) NH4OH
b) NH4Cl
c) CH_3COONa
d) NH_4NO_3

79. pH of the solution is mathematically expressed as

a) Log(H+)
b) -Log(H+)
c) Log 1/(H+)
d) POH-14
e) Both b and c

80.If the concentration of an acids is increased, its pH is

a) Increases
b) Decreases
c) Remain same
d) No change

81. On dilution of buffer solution , its pH
   a) Increased
   b) Decreased
   c) Remain same
   d) None of these

82.An aqueous solution whose pH=0 , is
   a) Acidic
   b) Basic
   c) Neutral
   d) Amphometric

83. the Ph of neutral solution is
   a) 0
   b) 7
   c) 4
   d) 8

84. the buffer solution is
   a) Which resist change in pH
   b) Increase pH
   c) Decrese pH
   d) None of these

85. the shape of XeF2 molecule is
   a) Linear
   b) Pyramidal
   c) Square planner
   d) Angular

86. the bond angle of F-Cl-F in ClF3 molecule is
   a) 90^0
   b) 104.5^0
   c) 109.5^0
   d) 87.5^0

87. which one of the following has pyramidal structure
   a) NH_3
   b) H_2O
   c) SF_4
   d) BF_3

88.The hybridisation of S in SF_4 is
   a) sp3
   b) sp2
   c) sp3d
   d) none

89.which is planar in structure

a) **XeF_4**
b) NH_3
c) XeF_2
d) H_2O

90.which of the following contains one lone pair of electron on central atoms
a) ClF_3
b) NH_3
c) XeF_2
d) H_2O

91. the geometry of IF_7 molecule is
a) Pentagonal bipyramidal
b) Angular
c) Octahedral
d) Square pyramidal

92.In XeF_2 the number of lone pair on Xe is
a) 1
b) 2
c) 3
d) 4

93. the molecule having three lone pairs and two bond pairs
a) IF_5
b) XeF_2
c) XeF_4
d) ClF_3

94. The molecule involving sp3d hybridisation is
a) BF_3
b) SF_6
c) PF_5
d) IF_7

95.Which of the following molecule is linear
a) IF_5
b) $SnCl_2$
c) BeF_3
d) BeF_2

96.The geometry of H2O molecule is
a) Tetrahedral
b) Angular
c) Pyramidal
d) Planar triangle

97. the molecule having three lone pairs and two bond pairs is
a) IF_5
b) XeF_2
c) XeF_4

d) ClF_3

98.The Kw is called as

a) Dissociation constant
b) Ionisation constant
c) Ionic product of water
d) Solubility constant

99. Monobasic acid has

a) One H+ ion
b) One OH- ion
c) Two H+ ions
d) Two OH- ions

100. VSEPR stands for

a) Valence shell electron pair reduction theory
b) Valence sublevel electron pair rejection theory
c) Valence shell electron pair repulsion theory
d) Valence shell electron pair repetition theory

_____BEST OF LUCK_____