

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

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) **$C_5 H_{10}$** (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 radical 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) Mixture of three alkane
(d) **Mixture of four alkane**
5. $CH_3 CH_2 OH + CH_3 MgBr \rightarrow$ Product .
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) **$C_3 H_8 + C_4 H_{10}$** (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 monosubstituted derivative**
b. The C-C bond length in benzene is uniformly 1.397 Å
c. It is a resonance hybrid of a number of canonical forms
d. It has three delocalised p- molecular orbitals

16. Which is not aromatic hydrocarbon?

- (a) Benzene (b) Toluene (c) **phenol** (d) Naphthalene

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

- (a) $\text{C}_6\text{H}_5\text{Cl}$ (b) $\text{C}_6\text{H}_5\text{COCl}$ (c) **$\text{C}_6\text{H}_5\text{COCH}_3$** (d) $\text{C}_6\text{H}_5\text{CH}_3$

18. Nitration of Benzene is

- (a) **Electrophilic Substitution** (b) Nucleophilic Substitution
(c) Electrophilic addition (d) Free radical Substitution

19. Match the column AND select the correct match

column I

column II

(A) Benzene

(B) Ethene

(C) Ethyne

(D) Butane

(p) Wurtz reaction of C_2H_5Cl

(q) Evolves H_2 when heated with sodium metal

(r) Dehydration of ethanol

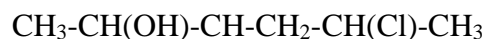
(s) Electrophilic substitution

- 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_____.

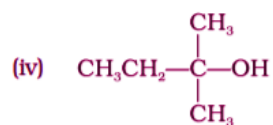
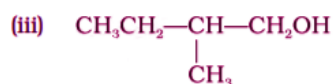
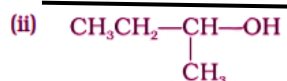
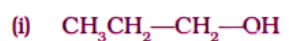
- (a) addition reaction
(b) **substitution reaction**
(c) dehydrohalogenation reaction
(d) rearrangement reaction

22. Give IUPAC name of the compound given below.



- 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



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



- 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) $(\text{CH}_3)_2\text{CHBr}$

b) $(\text{CH}_3)_3\text{CCH}_2\text{Br}$

c) **$\text{CH}_3\text{CH}(\text{Br})\text{CH}_2\text{CH}_3$**

d) $(\text{CH}_3)_2\text{CBrCH}_2\text{CH}_3$

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

a) p- $\text{ClC}_6\text{H}_4\text{CH}_2\text{CH}(\text{CH}_3)_2$

b) p- $\text{CH}_3\text{CHCl}(\text{C}_6\text{H}_4)\text{CH}_2\text{CH}_3$

c) o- $\text{BrH}_2\text{C}-\text{C}_6\text{H}_4\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_3$

d) $\text{C}_6\text{H}_5\text{-Cl}$

e) **Both a and d**

33. Alkyl halides are prepared from alcohols by treating with

a) $\text{HCl} + \text{ZnCl}_2$

b) Red P + Br_2

c) $\text{H}_2\text{SO}_4 + \text{KI}$

d) **from a and b**

34. The major organic product in the reaction, $\text{CH}_3 - \text{O} - \text{CH}(\text{CH}_3)_2 + \text{HI} \rightarrow$ product:

is/are

(a) $\text{CH}_3\text{I} + (\text{CH}_3)_2\text{CHOH}$

(b) $\text{CH}_3\text{OH} + (\text{CH}_3)_2\text{CHI}$

(c) $\text{ICH}_2\text{OCH}(\text{CH}_3)_2$

(d) $\text{CH}_3 - \text{O} - \underset{\text{I}}{\text{C}} - (\text{CH}_3)_2$

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. $(\text{CH}_3)_3\text{C}-\text{CH}_2\text{OH} \xrightarrow[170^\circ\text{C}]{\text{Conc. H}_2\text{SO}_4} \text{X}$ in the reaction X is-----

- A. $(\text{CH}_3)_2\text{C} = \text{CHCH}_3$
- (b) $\text{CH}_3\text{C} = \text{CH}$
- (c) $(\text{CH}_3)_2\text{CHCH}_2\text{CH}_3$
- (d) $\text{CH}_3 - \text{CH}_2 - \underset{\text{CH}_3}{\text{C}} = \text{CH}_2$

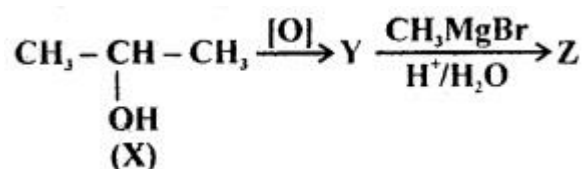
39. Propanone on reaction with alkyl magnesium bromide followed by hydrolysis will produce

- (a) primary alcohol
- (b) secondary alcohol
- (c) **tertiary alcohol**
- (d) carboxylic acid

40. The suitable reagent for the conversion of $\text{RCH}_2\text{OH} \rightarrow \text{RCHO}$ is

- (a) **$\text{K}_2\text{Cr}_2\text{O}_7$**
- (b) CrO_3
- (c) KMnO_4
- (d) O_2

41. In the following reaction sequence Z is



- 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) PH_3 and BCl_3
- b) AlCl_3 and SiCl_4
- c) PH_3 and SiCl_4
- d) BCl_3 and AlCl_3**

47. What is the conjugate base of OH^- ?

- a) O^2
- b) H_2O
- 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) NH₃
- b) CH₃COOH
- c) HCl**
- d) C₆H₁₂O₆

51. Find the conjugate acid of NH₂⁻

- a) NH₃**
- b) NH₄OH
- c) NH₄⁺
- d) NH₂⁻

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 sunlight to give
- a) Chloroform
 - b) **Carbon tetra chloride**
 - c) Methyl chloride
 - d) Methylene chloride
58. Saturated 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- Dichloropropane
 - b) 2,2-dibromobutane
 - c) **1,2 -dichlorobutane**

- d) 3,3-dobomopenane
65. which of the following is tertiary alcohol halide
- $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-CH(OH)-CH}_3$
 - $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-OH}$
 - $(\text{CH}_3)_3\text{C(OH)}$**
 - $(\text{CH}_3)_2\text{CH-CH}_2\text{-OH}$
66. The primary alcohol can be obtained by the action of RMgX with
- Formaldehyde**
 - Acetaldehyde
 - Acetone
 - Water
67. A tertiary alcohol can be prepared obtained when RMgX reacts with ___ - _____
- Ethanol
 - Ethanal
 - Propanal
 - Propanone**
68. Alkene are prepared from alcohols by
- Oxidation
 - Hydration**
 - Reduction
 - Addition
69. Ethers are the alkoxy derivatives of _____
- Alkanes**
 - Alkenes
 - Alcohols
 - Aldehydes
70. In continuous etherification process alcohol is reacted with
- Dil H_2SO_4
 - Dil HCl
 - Conc. H_2SO_4**
 - Conc. HCl
71. In the reaction of an ether with Hot HI , two same products are obtained then the ethers may be,
- Symmetrical**
 - Unsymmetrical
 - Both symmetrical
 - and unsymmetrical
 - None of the above
72. In the hydrolysis of ethers the H_2SO_4 acts as,
- Hydrolysis agents
 - Dehydrating agents**
 - Catalyst

d) Oxidizing agents

73. Methoxy methane on reaction with cold HI forms

- a) CH_3I only
- b) CH_3OH and CH_3I**
- c) CH_3OH and H_2O
- d) CH_3I and H_2O

74. ethers reacts with cold conc, H_2SO_4 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) H_2SO_4**
- c) HClO_4
- d) HNO_3

78. Oswalds dilution law is applicable to

- a) NH_4OH
- b) NH_4Cl
- c) CH_3COONa**
- d) NH_4NO_3

79. pH of the solution is mathematically expressed as

- a) $\text{Log}(\text{H}^+)$
- b) $-\text{Log}(\text{H}^+)$
- c) $\text{Log } 1/(\text{H}^+)$
- d) $\text{POH}-14$
- e) Both b and c**

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

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

81. On dilution of buffer solution , its pH
- Increased
 - Decreased
 - Remain same**
 - None of these
82. An aqueous solution whose $\text{pH}=0$, is
- Acidic
 - Basic
 - Neutral**
 - Amphometric
83. the Ph of neutral solution is
- 0
 - 7**
 - 4
 - 8
84. the buffer solution is
- Which resist change in pH**
 - Increase pH
 - Decrese pH
 - None of these
85. the shape of XeF_2 molecule is
- Linear**
 - Pyramidal
 - Square planner
 - Angular
86. the bond angle of F-Cl-F in ClF_3 molecule is
- 90°
 - 104.5°
 - 109.5°
 - 87.5°**
87. which one of the following has pyramidal structure
- NH_3**
 - H_2O
 - SF_4
 - BF_3
88. The hybridisation of S in SF_4 is
- sp^3
 - sp^2
 - sp^3d**
 - none
89. which is planar in structure

- a) **XeF₄**
- b) NH₃
- c) XeF₂
- d) H₂O

90. which of the following contains one lone pair of electron on central atoms

- a) ClF₃
- b) **NH₃**
- c) XeF₂
- d) H₂O

91. the geometry of IF₇ molecule is

- a) **Pentagonal bipyramidal**
- b) Angular
- c) Octahedral
- d) Square pyramidal

92. In XeF₂ 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) IF₅
- b) **XeF₂**
- c) XeF₄
- d) ClF₃

94. The molecule involving sp³d hybridisation is

- a) BF₃
- b) SF₆
- c) **PF₅**
- d) IF₇

95. Which of the following molecule is linear

- a) IF₅
- b) SnCl₂
- c) BeF₃
- d) **BeF₂**

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) IF₅
- b) **XeF₂**
- c) XeF₄

d) ClF_3

98. The K_w 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

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