MASTER TUTORIALS

Topic Name:

Date : _____ **Total Marks:** _____ **No Of Questions:** _____

1. The acid used in making of vinegar is -
(a) Formic acid
(b) Acetic acid
(c) Sulphuric acid
(d) Nitric acid

2. Common name of H_2SO_4 is-
(a) Oil of vitriol
(b) Muriatic acid
(c) Blue vitriol
(d) Green vitriol

3. $CuO + (X) \longrightarrow CuSO_4 + H_2O$. Here (X) is-
(a) $CuSO_4$
(b) HCI
(c) H_2SO_4
(d) HNO_3

4. Which of the following is the weakest base ?
(a) NaOH
(b) NH_4OH
(c) KOH
(d) $Ca(OH)_2$

5. Reaction of an acid with a base is known as-
(a) Decomposition
(b) Combination
(c) Redox reaction
(d) Neutralization

6. When CO_2 is passed through lime water, it turns milky; The milkiness is due to the formation of -
(a) $CaCO_3$
(B $Ca(OH)_2$
(c) H_2O
(d) CO_2

7. Caustic soda is the common name for-
(a) $Mg(OH)_2$
(b) KOH
(c) $Ca(OH)_2$
(d) NaOH

8. Antacids contain -
(a) Weak base
(b) Weak acid
(c) Strong base
(d) Strong acid

9. Calcium hydroxide (slaked lime) is used in -
(a) Plastics and dyes
(b) Fertilizers
(c) Antacids
(d) White washing

10. Acids gives -
(a) H^+ in water
(b) OH^- in water
(c) Both (a) & (b)
(d) None of these

11. H_2CO_3 is a -
(a) Strong acid
(b) Weak acid
(c) Strong base
(d) Weak base

12. A solution turns red litmus blue. Its pH is likely to be-
(a) 2
(b) 4
(c) 7
(d) 10

13. If pH of any solution is equal to zero then solution will be-
(a) Acidic
(b) Basic
(c) Neutral
(d) None of these

14. Methyl orange is –
(a) An acidic indicator
(b) A basic indicator
(c) A neutral indicator
(d) None of these

15. pH of Blood is-
(a) 6.4
(b) 7.4
(c) 4.7
(d) 6.4

16. If ph of solution is 13, means that it is-
(a) Weakly acidic
(b) Weakly basic
(c) Strongly acidic
(d) Strongly basic

17. Which is a base and not an alkali ?
(a) NaOH
(b) KOH
(c) $Fe(OH)_3$
(d) None is true

18. Energy released in neutralisation reaction which occurs between strong acid and strong base is-
(a) 57.8 Kj
(b) 57.1 kJ
(c) 57.9 kj

(d) 56.1 kj

19. A solution has pH 2. It contains
(a) CH_3COOH
(b) H_2CO_3
(c) HNO_3
(d) $H_2C_2O_4$

20. A solution has pH 9. On dilution the pH value
(a) Decreases
(b) Increases
(c) Remain same
(d) None of these

21. A salt derived from strong acid and weak base will dissolve in water to give a solution which is -
(a) Acidic
(b) Basic
(c) Neutral
(d) None of these

22. Materials used in the manufacture of bleaching powder are -
(a) Lime stone and chlorine
(b) Quick lime and chlorine
(c) Slaked lime and HCI
(d) Slaked lime and chlorine

23. Bleaching powder gives smell of chlorine because it-
(a) Is unstable
(c) Gives chlorine on exposure to atmosphere
(c) Is mixture of chlorine and slaked lime
(d) Contains excess of chlorine

24. Baking powder contains, baking soda and-
(a) Potassium hydrogen tartarate
(b) Calcium bicarbonate
(c) Sodium carbonate
(d) Vinegar

25. Plaster of paris is made from-(a) lime stone
(a) Lime stone
(b) Slaked lime
(c) Quick lime
(d) Gypsum

26. Setting of plaster of Paris takes place du
(a) Oxidation
(b) Reduction
(c) Dehydration
(d) Hydration

27. Chemical formula of baking soda is-
(a) $MgSO_4$
(b) Na_2CO_3
(c) $NaHCO_3$
(d) $MgCO_3$

28. The chemical name of marble is -
(a) Calcium carbonate
(b) Magnesium carbonate
(c) Calcium chloride
(d) Calcium sulphate

29. Washing soda has the formula -
(a) $Na_2 CO_3, 7H_2O$
(b) $Na_2CO_3, 10H_2O$
(c) Na_2CO_3, H_2O
(d) Na_2CO_3

30. The raw materials required for the manufacture of $NaHCO_3$ by Solvay process are -
(a) $CaCI_2$, $(NH_4)_2\ CO_3$, NH_3
(b) NH_4Ci,NaCI, $Ca(OH)_2$
(c) $NaCI_2$,$(NH_4)_2CO_3$,NH_3
(d) NaCO,NH_3CaCO_3,H_2O

31. Plaster of Paries hardens by-
(a) Giving off CO_2.
(b) Changing into $CaCO_3$.
(c) Combining with water
(d) Giving out water.

32. The difference in number of water molecules in gypsum and plaster of paris is-
(a) 5/2
(b) 2
(c) ½
(d) 3/2

33. All of the following are acid-base conjugate pairs:
(a) $HONO, NO_2^-$
(b) H_3O^+, OH^-
(c) $CH_3NH_3^+, CH_3NH_2$
(d) HS^-, S^{2-}

34. In the reaction:
$[Al(H_2O)_6^{3+}] + H_2O[Al(H_2O)_5(OH)^{2+}] + H_3O^+$
(a) $Al(H_2O)_6^{3+}$ is a base
(b) $Al(H_2O)_6^{3+}$ is an acid
(c) $Al(H_2O)_5(OH)^{2+}$ is a conjugate base
(d) $Al(H_2O)_5(OH)^{2+}$ is a conjugate acid

35. Which is the set of amphiprotic species ?
(a) $H_3O^+, HPO_4^{2-}, HCO_3^-$
(b) $H_2O, HPO_3^{2-}, H_2PO_2^-$
(c) $HSO_4^-, H_2PO_4^-, H_2PO_3^-$
(d) $HCO_3^-, HPO_3^{2-}, HPO_4^{2-}$

36. $[Cu(H_2O)_3(OH)]^+ + [Al(H_2O)_6]^{3+} A_1 \longrightarrow [Cu(H_2O)_4]^{+2}$
(a) A_1 is an acid and A_2 is a base
(b) A_1 is a base and A_2 is an acid
(c) A_3 is conjugate acid of A_1 and A_4 is conjugate base of A_2
(d) A_3 is conjugate base of A_1 and A_4 is conjugate acid of A_2

37. Which of the following is/are property of acids?
(a) All acids have a sour taste
(b) Acids turn blue litmus red
(c) Acids turn red litmus blue
(d) All acids form H^+ ions in water

38. Which of the following statements is/are correct?

(a) A base is a compound which contains either oxide or hydroxide ions

(b) NH_3 when dissolved in water, forms an alkaline solution

(c) A base is an electron acceptor

(d) An aqueous solution of a base feels soapy to touch

39. Which of the following is/are not the acidic salt?

(a) Na_2CO_3

(b) $NaHCO_3$

(c) NH_4Cl

(d) $NaCl$

40. Which of the following solvents will not dissolve an ionic compound ?

(a) Benzene

(b) Cyclohexane

(c) Water

(d) Ether

41. Which of the following statement (s) is/are correct regarding pH ?

(a) pH is defined as logarithm of H_3O^+ ion with –Ve sign

(b) pH cannot be zero, negative or more than 14

(c) pH decreases with increase of temperature

(d) If a solution is dilute 10 times, pH increases by 1

42. Which of the following can act as both a Bronsted acid and a Bronsted base ?

(a) NH_4^+

(b) HCO_3^-

(c) CI^-

(d) CO_3^{2-}

43. In the Bronsted-Lowry system a base is defined as

(a) An electron-pair acceptor

(b) A hydroxide donor

(c) A proton donor

(d) A proton acceptor

44. In the following system $CN^- + H_2O \rightleftharpoons HCN + OH^-$ the conjugate acid-base pairs are

(a) CN^-/OH^- and H_2O/HCN

(b) CN^-/H_2O and HCN/OH^-

(c) CN^-/HCN and H_2O/OH^-

(d) Only H_2O and HCN

45. Which of the following is the strongest base ?

(a) ClO^-

(b) ClO_3^-

(c) ClO_4^-

(d) ClO_2^-

46. The conjugate base of HCO_3^- is

(a) H_2CO_3

(b) CO_2

(c) H_2O

(d) CO_3^{2-}

47. The following equilibrium is established when hydrogen chloride is dissolved in acetic acid $HCL + CH_3COOH \rightleftharpoons CL^- + CH_3COOH_2^+$ The set that characterises the conjugate acid-base pairs is

(a) (HCL, CH_3COOH) and $(CH_3COOH_2^+, CL^-)$

(b) $(HCL, CH_3COOH_2^+)$ and (CH_3COOH, CL^-)

(c) $(CH_3COOH_2^+, HCL)$ and (CL^-, CH_3COOH)

(d) (HCL, CL^-) and $(CH_3COOH_2^+, CH_3COOH)$

48. In a neutral solution:

(a) Concentration of H^+ ions is zero

(b) Concentration of OH^- ions is zero

(c) $[H^+] = [OH^-] = 10^{-7}$

(d) $[H^+] = [OH^-] = 0$

49. The example of a weak acid is

(a) HCL

(b) H_2CO_3

(c) CH_3COOH

(d) HNO_3

50. pH is defined as

(a) $-\log[H^+]$

(b) $\log[H^+]$

(c) $\log[OH^-]$

(d) $\log[H_3^+O]$

51. HCl is an Arrhenius acid because it gives

(a) H^+ ions in aqueous solution

(b) Cl^- ions in aqueous solution

(c) Both H^+ and Cl^- ions in aqueous solution

(d) None of these

52. In the reaction $HCO_3^- + H_2O \rightleftharpoons H_3O^+ + CO_3^{2-}$ HCO_3^- is the conjugate acid of the base

(a) H_3O^+

(b) H_2O

(c) CO_3^{2-}

(d) None of these

53. The hydrogen ion concentration of a solution is 1.0×10^{-5} M. The nature of the solution is

(a) Acidic

(b) Alkaline

(c) Neutral

(d) Amphoteric

54. The hydroxide ion concentration of a solution is 1.0×10^{-11} M. The pH value of the solution is

(a) 11
(b) 2
(c) 3
(d) 14

55. Conjugate base of H_2 is:
(a) H^+
(b) H_3^+
(c) H^-
(d) H_3^-

56. Conjugate base of HO_2^- is:
(a) O_2^- (superoxide ion)
(b) H_2O_2
(c) O_2^{2-} (peroxide ion)
(d) O_2^+

57. Which is Bronsted-Lowry acid as well as Arrhenius acid ?
(a) H_2
(b) HCO_3^-
(c) NH_3
(d) NH_2^-

58. Review the equilibrium and choose the correct statement
$HClO_4 + H_2O \rightleftharpoons H_3O^+ + ClO_4^-$
(a) $HClO_4$ is the conjugate acid of H_2O
(b) H_3O^+ is the conjugate base of H_2O
(c) H_2O is the conjugate acid of H_3O^+
(d) ClO_4^- is the conjugate base of $HClO_4$

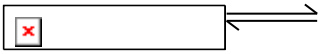
59. Which of the following can act both as Bronsted acid and Bronsted base
(a) Cl^-
(b) HCO_3^-
(c) H_3O^+
(d) OH^-

60. Which of the following is the strongest conjugate base
(a) Cl^-
(b) CH_3COO^-
(c) SO_4^{-2}
(d) NO_2^-

61. Which one of the following can be classified as a Bronsted base
(a) NO_3^-
(b) H_3O^+
(c) NH_4^+
(d) CH_3COOH

62. An aqueous solution of ammonia consists of
(a) H^+
(b) OH^-
(c) NH_4^+
(d) NH_4^+ and OH^-

63. Ammonia gas dissolves in water to give NH_4OH. In this reaction water acts as
(a) An acid
(b) A base
(c) A salt
(d) A conjugate base

64. In the equilibrium  $CH_3COOH_2^+ + F^-$
(a) F^- is the conjugate acid of CH_3COOH
(b) F^- is the conjugate base of HF
(c) CH_3COOH is the conjugate acid of $CH_3COOH_2^+$
(d) $CH_3COOH_2^+$ is the conjugate base of CH_3COOH

65. C_2H_5ONa is a.....in C_2H_5OH
(a) Strong base
(b) Strong acid
(c) Weak acid
(d) Weak base

66. Accepting the definition that an acid is a proton donor, the acid in the following reaction $NH_3 + H_2O \rightarrow NH_4^+ + OH^-$ is
(a) NH_3
(b) H^+
(c) NH_4^+
(d) H_2O

67. In the following reaction $HC_2O_4^- + PO_4^{---} \rightleftharpoons HPO_4^{--} + CO_4^{--}$ Which are the two Bronsted bases
(a) $HC_2O_4^-$ and PO_4^{---}
(b) HPO_4^{--} and $C_2O_4^{--}$
(c) $HC_2O_4^-$ and HPO_4^{--}
(d) $HC_2O_4^-$ and $C_2O_4^{--}$

68. Which of the following is a conjugated acid-base pair
(a) HCl, NaOH
(b) NH_4Cl, NH_4OH
(c) H_2SO_4, HSO_4^-
(d) KCN, HCN

69. The conjugate acid of HPO_3^{2-} is
(a) H_3PO_4
(b) H_3PO_3
(c) $H_2PO_3^-$
(d) PO_4^{3-}

70. What name is given to the reaction between hydrogen ion and hydroxyl ion
(a) Hydrogenation
(b) Hydroxylation
(c) Hydrolysis
(d) Neutralization

71. A solution of sodium acetate in water will
(a) Turn red litmus blue
(b) Turn blue litmus red
(c) Not effect litmus
(d) Decolourises litmus

72. Cl^- is the conjugate base of
(a) $HClO_4$
(b) HCl
(c) HOCl
(d) $HClO_3$

73. The conjugate acid of a strong base is a
(a) Strong acid
(b) Weak acid
(c) Strong base
(d) Weak base

74. Conjugate base of HPO_4^{2-} is
(a) PO_4^{3-}
(b) $H_2PO_4^-$
(c) H_3PO_4
(d) H_4PO_3

75. Which one of the following salts gives an acidic solution in water
(a) CH_3COONa
(b) NH_4Cl
(c) NaCl
(d) CH_3COONH_4

76. The species among the following, which can act as an acid and a base is
(a) HSO_4^-
(b) SO_4^{2-}
(c) H_3O^+
(d) Cl^-

77. The strongest base from the following species is
(a) NH^{2-}
(b) OH^-
(c) O^{2-}
(d) S^{2-}

78. The conjugate acid of $S_2O_8^{2-}$ is
(a) $H_2S_2O_8$
(b) H_2SO_4
(c) HSO_4^-
(d) $HS_2O_8^-$

79. Which of the following statement is true
(a) The conjugate base of a strong acid is a strong base
(b) The conjugate base of a weak acid is a strong base
(c) The conjugate base of a weak acid is a weak base
(d) The base and its conjugate acid react to form a neutral solution

80. Which of the following is the strongest base
(a) $C_2H_5^-$
(b) $C_2H_5OO^-$
(c) $C_2H_5O^-$
(d) OH^-

81. The conjugate base of a strong acid is a
(a) Strong base
(b) Strong acid
(c) Weak acid
(d) Weak base

82. In the reaction $2H_2O \rightleftharpoons H_3O^+ + OH^-$, water is
(a) A weak base
(b) A weak acid
(c) Both a weak acid and a weak base
(d) Neither an acid nor a base

83. Which of the following is known as hydronium ion
(a) H^+
(b) H_2O^+
(c) H_3O^+
(d) $H_2O_2^+$

84. Aqueous solution of an acid is characterised by the presence of
(a) H^+ ions
(b) H_2^+ ions
(c) H_3O^+ ions
(d) H_4O^+ ions

85. The conjugate base in the following reaction
$H_2SO_4 + H_2O \rightleftharpoons H_3O^+ + HSO_4^-$
(a) H_2O
(b) HSO_4^-
(c) H_3O^+
(d) SO_2

86. According to Bronsted law, water is a/an
(a) Base
(b) Acid
(c) Acid and base both
(d) Salt

87. A solution turns red litmus blue, its pH is likely to be-
(a) 1
(b) 4
(c) 5
(d) 10

88. A solution reacts with crushed egg-shells to give a gas that turns lime-water milky. The solution contains-

(a) NaCl
(b) HCl
(c) LiCl
(d) KCl

89. 10 mL of a solution of NaOH is found to be completely neutralised by 8mL of a given solution of HCl. If we take 20 mL of the same solution of NaOH, the amount HCl solution (the same solution as before) required to neutralise it will be-
(a) 4 Ml
(b) 8 mL
(c) 12 mL
(d) 16 mL

90. Which one of the following types of medicines is used for treatment indigestion-
(a) Antibiotic
(b) Analgesic
(c) Antacid
(d) Antiseptic

91. According to Arrhenius acid gives –
(a) H^+ in water
(b) OH^- in water
(c) Both (a) & (b)
(d) OH^- in acid medium

92. Milk of magnesia is an –
(a) Acid
(b) Antacid
(c) Alkali
(d) Rock salt

93. Noble metals are dissolved in –
(a) Conc. HNO_3
(b) Conc. HCl
(c) Conc. H_2SO_4
(d) Aqua-regia

94. Which of the following is not a strong acid?
(a) H_2SO_4
(b) CH_3COOH
(c) HNO_3
(d) HCl

95. Soda ash is –
(a) $Na_2CO_3H_2O$
(b) Na_2CO_3
(c) NaOH
(d) $NaHCO_2$

96. Which of the following is an basic salt?
(a) $SnCl_2$
(b) NaCl
(c) NH_4Cl
(d) CH_3COONa

97. Which of the following method is not used in preparing a base?
(a) Burning of metal in air
(b) Adding water to a metal oxide.
(c) Reaction between an acid and base
(d) Heating metal carbonates.

98. Fats + NaOH……+ Glycerol. One of the product formed in this reacton is-
(a) Soap
(b) Cloth
(c) Paper
(d) Wood

99. Potash alum is a ?
(a) Simple salt
(b) Complex salt
(c) Acid salt
(d) Double salt

100. $NaHCO_3$ represent the formula of which one of the following ?
(a) Sodium carbonate
(b) Baking soda
(c) Sodium acetate
(d) Washing soda