Acids and Bases

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

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

43. Among the following, the weakest Lewis base is
(a) H^- (b) OH^-
(c) Cl^- (d) HCO_3^-

44. The pKa for acid *A* is greater than pKa for acid *B*. The strong acid is
(a) Acid *B*
(b) Acid *A*
(c) Both *A* and *B*
(d) Neither *A* nor *B*

45. The conjugate acid of NH_2^- is
(a) NH_3 (b) NH_4^+
(c) NH_2OH (d) N_2H_4

46. Correct statement is
(a) NH_4Cl gives alkaline solution in water
(b) CH_3COONa gives acidic solution in water
(c) CH_3COOH is a weak acid
(d) NH_4OH is a strong base

47. pK_a of a weak acid is defined as
(a) $\log 10K_a$ (b) $\frac{1}{log_{10}\rightleftarrows K_a}$
(c) $\log 10\frac{1}{K_a}$ (d) $-\log 10\frac{1}{K_a}$

48. A salt $'X'$ is dissolved in water $(pH = 7)$, the resulting solution becomes alkaline in nature. The salt is made of
(a) A strong acid and strong base
(b) A strong acid and weak base
(c) A weak acid and weak base
(d) A weak acid and strong base

49. Which one is not an acid salt
(a) NaH_2PO_2 (b) NaH_2PO_3
(c) NaH_2PO_4 (d) None

50. A white substance was alkaline in solution. Which of the following substances could it be
(a) Fe_2O_3 (b) Na_2CO_3
(c) NH_4Cl (d) $NaNO_3$

51. An aqueous solution of ammonium carbonate is
(a) Weakly acidic
(b) Weakly basic
(c) Strongly acidic
(d) Neither acidic nor basic

52. $100ml$ of $0.2MH_2SO_4$ is added to $100ml$ of $0.2MNaOH$. The resulting solution will be
(a) Acidic
(b) Basic
(c) Neutral
(d) Slightly basic

53. H_3BO_3 is
(a) Monobasic and weak Lewis acid
(b) Monobasic and weak Bronsted acid
(c) Monobasic and strong Lewis acid
(d) Tribasic and weak Bronsted acid

54. In the reaction $SnCl_2 + 2Cl^- \rightarrow SnCl_4$, Lewis acid is
(a) $SnCl_2$
(b) Cl^-
(c) $SnCl_4$
(d) None of these

55. Lewis base is
(a) CO_2 (b) SO_3
(c) SO_2 (d) ROH

56. 1×10^{-12} of $1MH_2SO_4$ will completely neutralise
(a) $10ml$ of $1MNaOH$ solution
(b) $10ml$ of $2MNaOH$ solution
(c) $5ml$ of $2MKOH$ solution
(d) $5ml$ of $1MNa_2CO_3$ solution

57. Which of the following compounds are diprotic
(a) H_2PO_5 (b) H_2S
(c) $HClO_3$ (d) H_3PO_3

58. When 100 *ml* of 1*M* $NaOH$ solution is mixed with 10 *ml* of 10 *M* H_2SO_4, the resulting mixture will be
(a) Acidic
(b) Alkaline
(c) Neutral
(d) Strongly alkaline

59. The pHindicators are
(a) Salts of strong acids and strong bases
(b) Salts of weak acids and weak bases
(c) Either weak acids or weak bases
(d) Either strong acids or strong bases

60. Which of the following is not Lewis acid
(a) BF_3 (b) $AlCl_3$
(c) $FeCl_3$ (d) PH_3

61.