



CHEMISTRY

BOOKS - ARIHANT PUBLICATION

JHARKHAND

**ELECTROCHEMISTRY, ACIDS , BASES ,
SALT AND HYDROLYSIS**

Exam Booster For Cracking Exam

1. When electricity is passed through a solution of $AlCl_3$ and 13.5g of Al is deposited, the number of Faraday of electricity passed must beF`.

A. 0.5

B. 1

C. 1.5

D. 2

Answer: C



[Watch Video Solution](#)

2. Faraday's laws of electrolysis are related to

A. equivalent weight

B. atomic weight

C. molecular weight

D. atomic number

Answer: A



[Watch Video Solution](#)

3. Number of faraday's required to generate one gram atom of magnesium from molten $MgCl_2$ is :

A. 1

B. 2

C. 3

D. 4

Answer: B



Watch Video Solution

4. Rgw atomic weight of Al is 27. When a current of $5F$ is passed through a solution of Al^{+++} ions, the weight of AL deposited is.

A. 27 g

B. 36 g

C. 46 g

D. 9g

Answer: C



Watch Video Solution

5. During the electrolysis of fused NaCl, which reaction occurs at anode ?

A. Chloride ions are oxidised

B. Chloride ions are reduced

C. Sodium ions are oxidised

D. Sodium ions are reduced

Answer: A



Watch Video Solution

6. What weight of copper will be deposited by passing 2 faradays of electricity through a cupric salt (atomic weight of $Cu = 63.5$) ?

- A. Molecular weight
- B. Electro chemical equivalent
- C. 63.5 g
- D. 127.0 g

Answer: C



Watch Video Solution

7. Faraday's laws of electrolysis are related to

A. atomic number of the cation

B. atomic number of the anion

C. equivalent weight of the electrolyte

D. speed of the cation

Answer: C



Watch Video Solution

8. An apparatus used for the measurement of quantity of electricity is known as

A. calorimeter

B. cathetometer

C. coulometer

D. colorimeter

Answer: C



Watch Video Solution

9. When sodium chloride solution is electrolysed, the gas that is liberated at the cathode is _____.

A. oxygen

B. hydrogen

C. chlorine

D. gas

Answer: B



Watch Video Solution

10. The number of moles of oxygen obtained by the electrolytic decomposition of 90g water is :

A. 1

B. 2.5

C. 5

D. 9

Answer: B



Watch Video Solution

11. The unit of electro-chemical equivalent is

A. gram

B. gram/ampere

C. gram/coulomb

D. coulomb/gram

Answer: C



Watch Video Solution

12. To deposit 0.6354g of copper by electrolysis of aqueous cupric sulphate solution, the amount of electricity required (in coulombs) is.

A. 9650

B. 4825

C. 3960

D. 1930

Answer: D



Watch Video Solution

13. The cathodic reaction in electrolysis of dilute H_2SO_4 with platinum electrode is:

A. oxidation

B. reduction

C. both oxidation and reduction

D. neutralisation

Answer: B



Watch Video Solution

14. One Faraday of electricity will liberate 1g atom of the metal from the solution of

A. NaCl

B. $BaCl_2$

C. $CuSO_4$

D. $AlCl_3$

Answer: A



Watch Video Solution

15. If the current is passed into the solution of the electrolyte

A. anions move towards anode, cations towards cathode

B. anions and cations both move towards anode

C. anions move towards cathode cations towards anode

D. no movement of ions takes place

Answer: A



Watch Video Solution

16. A certain current liberated 0.504 g of hydrogen in 2 hours. How many gram of copper can be liberated by the same current flowing for the same time in $CuSO_4$ solution ?

A. 12.7 g

B. 15.9 g

C. 31.8 g

D. 63.5 g

Answer: B



Watch Video Solution

17. The atomic weight of silver and copper are 108 and 64. A silver voltameter and a copper voltameter are connected in series and when current is passed 10.8 gm of silver is

deposited. The mass of copper deposited will be

A. 6.4 g

B. 3.2g

C. 3.2g

D. 10.8 g

Answer: C



Watch Video Solution

18. The best conductor of electricity in 0.01 M solution of

A. boric acid

B. sulphuric acid

C. acetic acid

D. propionic acid

Answer: B



View Text Solution

19. A current of 'c' amperes is passed through the solution of an electrolyte for t s. It results in the deposition of 'm' g of a substance at an electrode. The electrochemical equivalent of the substance is

A. ZCT

B. $\frac{M}{C \times t}$

C. $\frac{C \times t}{M}$

D. $\frac{t}{C \times m}$

Answer: B



20. According to Faraday's second law of electrolysis

A. $\frac{M_1}{M_2} = \frac{E_1}{E_2}$

B. $m = Z \times C \times t$

C. $Z = \frac{m}{C \times t}$

D. $\frac{E_1}{E_2} = \frac{Z_2}{Z_1}$

Answer: A

21. An electrolytic cell contains aqueous solution of silver sulphate and has platinum electrodes. A current is passed until 1.6 g of oxygen has been liberated at the anode. The amount of silver deposited at the cathode would be

A. 107.88 g

B. 1.6 g

C. 0.8 g

D. 21.58 g

Answer: D



View Text Solution

22. When an electric current is passed through an aqueous solution of sodium chloride

A. oxygen is evolved at the anode

B. oxygen is evolved at the cathode

C. its pH progressively decreases

D. its pH progressively increases

Answer: D



Watch Video Solution

23. A solution of sodium sulphate in water is electrolysed using inert electrodes. The products at the cathode and anode are respectively

A. H_2 , O_2

B. O_2, H_2

C. O_2, Na

D. SO_2

Answer: A



Watch Video Solution

24. Sodium cannot be extracted by electrolysis of brine because

- A. sodium liberated reacts with water to produce $\text{NaOH} + \text{H}_2$
- B. sodium being more electro + ve than hydrogen, H_2 is liberated at cathode not sodium
- C. electrolysis cannot take place with brine solution
- D. None of foregoing

Answer: B



View Text Solution

25. During electrolysis, the process taking place at cathode is

A. oxidation

B. reduction

C. neutralisation

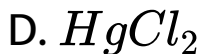
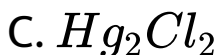
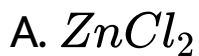
D. polymerisation

Answer: B



Watch Video Solution

26. The reference electrode is made from one of the following



Answer: C



View Text Solution

27. Theory of ionisation was given by

A. Rutherford

B. Faraday

C. Graham

D. Arrhenius

Answer: D



Watch Video Solution

28. Acetic acid is weak acid because

A. it is unstable

B. It is an organic aliphatic acid

C. it is slightly ionised

D. None of the above

Answer: C



Watch Video Solution

29. In solution, the hydrogen ion exists as

A. H^+

B. either H^+ or H^-

C. H_3O^+

D. H^+ surrounded by several water molecule

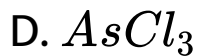
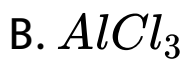
Answer: C



View Text Solution

30. Which one of the following is Lewis acid?

A. PCl_3

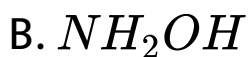


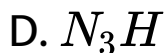
Answer: B



Watch Video Solution

31. The conjugate acid of NH_2^- is



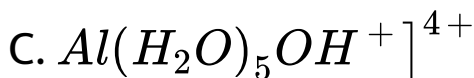
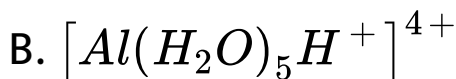
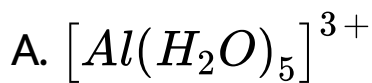


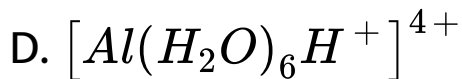
Answer: A



Watch Video Solution

32. The Conjugate base of $[Al(H_2O)_6]^{3+}$ is



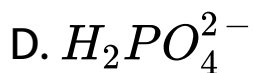
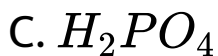
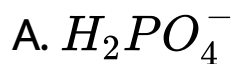


Answer: C



View Text Solution

33. The conjugate base of HPO_4^{2-} is



Answer: B



View Text Solution

34. Which one of the following is amphiprotic in nature?



Answer: B



Watch Video Solution

35. Pyrophosphoric acid is a

A. monobasic acid

B. dibasic acid

C. tribasic acid

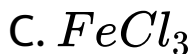
D. tetrabasic acid

Answer: D



[View Text Solution](#)

36. Which one of the following is Lewis acid?



D. all of these

Answer: D



[Watch Video Solution](#)

37. NH_4Cl is a salt of a

- A. weak acid and weak base
- B. weak acid and strong base
- C. strong acid and base
- D. strong acid and weak base

Answer: D



Watch Video Solution

38. Reaction $\overset{\cdot\cdot}{N}H_3 + BF_3 \rightarrow NH_3 \rightarrow BF_3$

NH_3 and BF_3 are

- A. Lewis base and Lewis acid
- B. Lewis base and Lewis base
- C. Lewis acid and Lewis base
- D. Arrhenius acid and base

Answer: A



View Text Solution

39. Which one of the following is not a Bronsted-Lowery acid ?

A. HCl

B. HNO_3

C. CH_3COOH

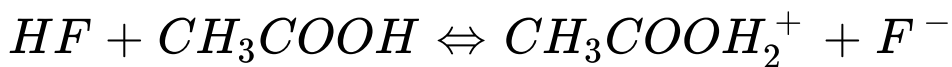
D. BF_3

Answer: D



Watch Video Solution

40. In the reaction



. Acetic acid is

A. base

B. strong

C. weak acid

D. None of these

Answer: A



View Text Solution

41. A strong acid has a conjugate

A. strong base

B. weak base

C. strong acid

D. weak acid

Answer: B



View Text Solution

42. Acids generally react with alkalies to form salt and water. Which one of the following bases, on reaction with acid, does not produce water along with salt?

- A. Ammonia
- B. Sodium bicarbonate
- C. Sodium hydroxide
- D. Calcium hydroxide

Answer: A



View Text Solution

43. Which of the following statements is not correct?

A. Ag^+ Is Lewis acid

B. Bracts as a Lewis as well as a Bronsted
base

C. $[H_3O]^+$ is a Bronsted acid

D. The acid strength of HF is greater than
that of HI

Answer: D



View Text Solution

44. When CH_3COONa is added to aqueous CH_3COOH solution

- A. pH will decrease
- B. pH will increase
- C. pH remains unchanged
- D. pH value becomes zero

Answer: B



View Text Solution

45. The pH of the blood is maintained by the carbonic acid and bicarbonate buffer. The pH of this buffer is

A. 8

B. 5

C. 6

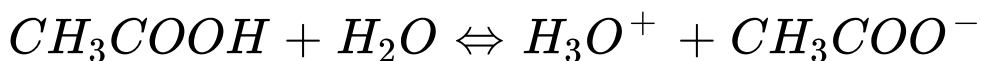
D. 7.4

Answer: D



View Text Solution

46. Ionic dissociation of acetic acid is represented as



Which of the following statement are/is correct?

1. According to Lowery and Bronsted, the reaction posses an acid and three bases.
2. H_2O can act both as Bronsted acid and

Bronsted base.

3. CH_3COO^- is a strong Bronsted base. 4.

H_2O acts as Lewis acid and Lewis base.

A. 1 and 3

B. 2 and 4

C. 1,2 and 3

D. 1,3 and 4

Answer: C



View Text Solution

47. Which of the following statements is/are true?

1. An acid and its conjugate base react to form salt and water. 2. The acid H_2O is its own conjugate base. 3. Acid and its conjugate base differ by a proton. 4. All Bronsted acid should have an atom with lone pair of electron.

A. 1 and 2

B. 3 and 4

C. Only 3

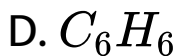
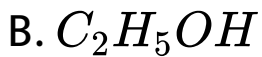
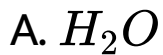
D. 1 and 4

Answer: C



View Text Solution

48. HC is not an acid in



Answer: D



[View Text Solution](#)

49. An aqueous solution of potash alum is

A. alkaline

B. acidic

C. neutral

D. soapy to touch

Answer: B



[Watch Video Solution](#)

50. Cu^{2+} ion is

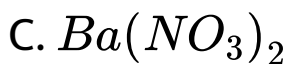
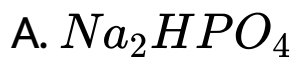
- A. weakly acidic
- B. weakly basic
- C. strongly basic
- D. neutral

Answer: A



Watch Video Solution

51. Which one is an acidic salt?

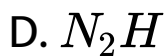
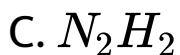
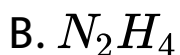


Answer: A



View Text Solution

52. Hydride of nitrogen which is acidic is



Answer: D



View Text Solution

53. Acid A, B, C and D has the value 1, 2.0, 4 and 2.5 respectively. Which acid is strongest among the following?

A. A

B. B

C. C

D. D

Answer: A



View Text Solution

54. Water acts as a

A. Arrhenius acid as well as base

B. Bronsted-Lowery acid and base

C. Lewis base

D. All of the above

Answer: D



View Text Solution

55. Which one of the following elements can displace hydrogen gas from dilute acids?

A. Aluminum

B. Copper

C. Gold

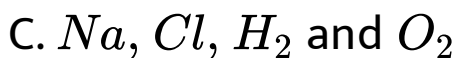
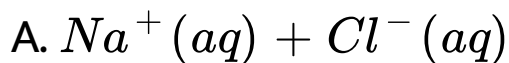
D. Silver

Answer: A



View Text Solution

56. Dissolving common salt in water is expressed as $NaCl + H_2O$, then the solution contains



Answer: A



View Text Solution

57. Which one of the following salts when dissolved in water makes the solution acidic?

A. Sodium sulphate

B. Potassium nitrate

C. Sodium acetate

D. Ferric sulphate

Answer: D



View Text Solution

58. Aqueous solution of a salt is alkaline. This show that the salt is made from

A. a strong acid and strong base

B. a strong acid and a weak base

C. a weak acid and weak base

D. a weak acid and strong base

Answer: D



View Text Solution

59. Which of the following statement is incorrect for a weak acid?

A. It Is partially dissociated

B. Its dissociation constant is low

C. Its is very low

D. Solution of its sodium salt in water is
alkaline

Answer: C



View Text Solution

60. Aqueous solution of $CuSO_4$ changes blue litmus to red as

- A. Cu^{2+} is present
- B. SO_4^{2-} is present
- C. hydrolysis takes place
- D. reduction takes place

Answer: C



View Text Solution

61. Consider the following statements

1. gives acidic solution in water, 2 gives acidic solution in water. 3. is a weak acid. 4. is a weak base.

Select the correct answer.

A. 1, 2 and 3

B. 1, 3 and 4

C. 2, 3 and 4

D. 1 and 3

Answer: B





[View Text Solution](#)

62. A double salt is that which gives

A. two cations other than H^+ ions

B. more than one anion

C. one cation other than H^+

D. None of the above

Answer: A



[Watch Video Solution](#)

63. In the oxidation of ferrous sulphate by acidified $KMnO_4$ solution the typical Lewis base is



Answer: B



View Text Solution

64. How much water should be added to 200 cc of semi-normal solution of NaOH to make it exactly decinormal

A. 200cc

B. 400cc

C. 800cc

D. 600cc

Answer: C



View Text Solution

65. If 10 L of 18 molar H_2SO_4 , has been diluted to 100 L. The normality of the resulting solution is

A. 3.6 N

B. 1.8N

C. 0.36 N

D. 0.18 N

Answer: A



View Text Solution

66. The normality of a 26% (wt/vol.) solution of ammonia (density=0.855) is approximately

A. 1.5

B. 0.4

C. 15.3

D. 4

Answer: C



View Text Solution

67. When 100 cc of M NaOH solution is mixed with 10 cc of 10 M H_2SO_4 solution the resulting mixture will be

- A. acidic
- B. alkaline
- C. neutral
- D. strongly alkaline

Answer: A



[View Text Solution](#)

68. A sample of $Na_2SO_3 \cdot H_2O$ weighing 0.62 g is added to 100 mL of 0.1 N H_2SO_4 solution.

The resulting solution will be

A. neutral

B. acidic

C. basic

D. (a) and (b)

Answer: A



View Text Solution

69. 500 cc of a 0.1 N solution of $AgNO_3$ and added to 500 cc of 0.1 N solution of KCL The concentration of nitrate in the resulting mixture is

A. 1 N

B. 0.05 N

C. 0.1 N

D. 0.2N

Answer: B



View Text Solution

70. A sulphuric acid solution contains 80% by weight of H_2SO_4 and has a specific gravity of 1.73. Its normality is approximately

A. 10

B. 28.2

C. 36

D. 18

Answer: B



[View Text Solution](#)

71. How many of 0.1M NaOH are equivalent to 10 cc of 0.1 MH_2SO_4

A. 10cc

B. 20cc

C. 50cc

D. 40cc

Answer: B



[View Text Solution](#)

72.8g is dissolved in 1L of solution its molarity is

A. 0.2M

B. 0.4M

C. 0.04 M

D. 0.8 M

Answer: A



View Text Solution

73. The molarity of pure water is

A. 18

B. 50

C. 55.6

D. 100

Answer: C



View Text Solution

74. 23 g of sodium metal react with methyl alcohol (CH_3OH) to give

- A. 1 mol of oxygen
- B. 4 mol of hydrogen
- C. 1/2 mol of hydrogen
- D. None of these

Answer: C



View Text Solution

75. of 0.01 M NaOH solution is

A. 9

B. 11

C. 10

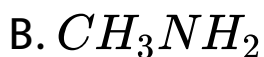
D. 12

Answer: D



View Text Solution

76. Which of the following can behave both like a Bronsted acid as well as Bronsted base?

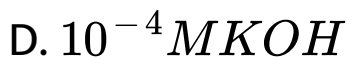
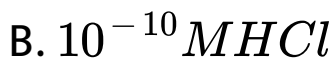
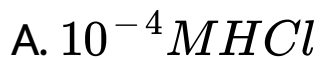


Answer: A



View Text Solution

77. Which solution has 10?



Answer: C



View Text Solution

78. Which of the following statements is incorrect for a weak acid?

A. It is partially dissociated

B. Its dissociation constant is low

C. Its pK_a is very low

D. solution of its sodium salt in water is alkaline

Answer: C



View Text Solution

