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SSC-I NATIONAL BOOK FOUNDATION FBISE

CHEMISTRY TEST - CHAPTER 10: ACIDS, BASES AND SALTS

Name:		Roll No.		Section:

Total Time: 2:30 Hour
Time Allowed: 150 Minutes

Total Marks: 150

PAPER OBJECTIVE
SECTION-A (MARKS 150)

NOTE: Section-A is compulsory. All parts of this section are to be answered on these pages and handed over to the center superintendent. Deleting / overwriting is not allowed. Do not use lead pencil.

Q.1 Fill the relevant bubble for each part. All parts carry one mark.

Questions	A	B	C	D	A B C D
1. Vinegar, aspirin, lemon juice and cola drinks contain:	Acids	Bases	Metals	Salts only	●○○○
2. Drain cleaners, antacid tablets and baking soda contain:	Acids	Metals	Noble gases	Bases	○○○●
3. Acids are widely used in the manufacture of fertilizers and in the:	Glass industry only	Mining only	Paper only	Food industry	○○○●
4. The first successful theory of acids and bases was proposed in 1887 by:	Lowry	Lewis	Svante Arrhenius	Bronsted	○○●○
5. Svante Arrhenius was a _____ chemist.	French	Swedish	German	British	○●○○
6. According to Arrhenius, an acid ionizes in water to produce:	OH^- ions	H^+ ions	Na^+ ions	Cl^- ions	○●○○
7. According to Arrhenius, a base ionizes in water to produce:	Cl^- ions	Na^+ ions	H^+ ions	OH^- ions	○○○●
8. HCl in water gives:	Na^+ and Cl^-	H^+ and Cl^-	H^+ and OH^-	OH^- and Cl^-	○●○○
9. HNO_3 is an:	Neutral	Salt	Acid	Base	○○●○
10. H_2SO_4 in water gives:	$2OH^-$ and Na^+	$2H^+$ and SO_4^{2-}	H^+ and OH^-	H^+ and SO_4	○●○○
11. KOH is a:	Neutral	Base	Salt	Acid	○●○○
12. NH_4OH in water gives:	NH_4^+ and OH^-	N_2 and H_2	NH_2^- and H^+	NH_3 and H^+	●○○○

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Questions	A	B	C	D	A B C D
13. The Arrhenius theory applies only to _____ solutions.	Organic	Aqueous	Solid	Gaseous	○●○○
14. The Arrhenius theory cannot explain why CO_2 and SO_2 are:	Acidic	Bases	Salts	Neutral	●○○○
15. The Arrhenius theory cannot explain why NH_3 is a:	Base	Acid	Neutral	Salt	●○○○
16. The Bronsted-Lowry theory was proposed by Bronsted and:	Lewis	Arrhenius	Lowry	Dalton	○○●○
17. According to Bronsted-Lowry, an acid is a:	Electron donor	Proton acceptor	Proton donor	Electron acceptor	○○●○
18. According to Bronsted-Lowry, a base is a:	Proton acceptor	Proton donor	Electron donor	Electron acceptor	●○○○
19. In $HCl + H_2O \rightarrow H_3O^+ + Cl^-$, the proton donor is:	H_2O	Cl^-	HCl	H_3O^+	○○●○
20. In $HCl + H_2O \rightarrow H_3O^+ + Cl^-$, the proton acceptor is:	HCl	H_3O^+	H_2O	Cl^-	○○●○
21. In $HCl + H_2O \rightarrow H_3O^+ + Cl^-$, water acts as a:	Acid	Catalyst	Salt	Base	○○○●
22. In $H_2O + NH_3 \rightarrow NH_4^+ + OH^-$, water acts as a:	Acid	Base	Catalyst	Salt	●○○○
23. After donating a proton, an acid forms a _____ ion.	Positive	Neutral	Doubly positive	Negative	○○○●
24. After accepting a proton, a base forms a _____ ion.	Neutral	Positive	Doubly negative	Negative	○●○○
25. Water can act as both an acid and a base, so it is:	Acidic only	Neutral only	Basic only	Amphoteric	○○○●
26. Ammonia is a _____ at room temperature.	Liquid	Gas	Solid	Plasma	○●○○
27. All Arrhenius acids are also acids in the _____ theory.	Bronsted-Lowry	Rutherford	Bohr	Dalton	●○○○
28. An acid that ionizes completely in water is:	A base	A strong acid	A weak acid	A salt	○●○○
29. Which is a strong acid?	CH_3COOH	HCl	H_2CO_3	H_3PO_4 (weak)	○●○○

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Questions	A	B	C	D	A B C D
30. Another example: Which is a strong acid?	H_2CO_3	HCN	CH_3COOH	H_2SO_4	○○○●
31. Strong acids ionize _____ in aqueous solution.	0%	100%	50%	5%	○●○○
32. Acids that do not ionize completely are:	Strong acids	Salts	Weak acids	Bases	○○●○
33. Ethanoic (acetic) acid is found in:	Milk	Vinegar	Soap	Lemon	○●○○
34. Acetic acid ionizes only up to about:	100%	5%	50%	95%	○●○○
35. Acetic acid is a:	Strong base	Weak acid	Strong acid	Salt	○●○○
36. The formula of ethanoic acid is:	HCl	CH_3COOH	HNO_3	H_2SO_4	○●○○
37. Which is a strong base?	$Cu(OH)_2$	NH_3	$Al(OH)_3$	NaOH	○○○●
38. Another example: Which is a strong base?	$Al(OH)_3$	NH_3	KOH	$Fe(OH)_3$	○○●○
39. Yet another: Which is a strong base?	$Ca(OH)_2$	NH_3	$Al(OH)_3$	$Zn(OH)_2$	●○○○
40. Which is a weak base?	NH_3	NaOH	$Ca(OH)_2$	KOH	●○○○
41. Another example: Which is a weak base?	$Ca(OH)_2$	NaOH	KOH	$Al(OH)_3$	○○○●
42. A weak base produces _____ OH^- ions in solution.	Fewer	More	No	Only H^+	●○○○
43. A water-soluble base is called an:	Alkali	Oxide	Acid	Salt	●○○○
44. All bases are alkalis. This statement is:	False	Unknown	True	Partly true	●○○○
45. Which is an alkali?	KOH	$Fe(OH)_3$	$Cu(OH)_2$	$Al(OH)_3$	●○○○
46. Another example: Which is an alkali?	$Cu(OH)_2$	$Al(OH)_3$	$Fe(OH)_3$	NaOH	○○○●

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Questions	A	B	C	D	A B C D
47. Which base does NOT dissolve in water?	$Cu(OH)_2$	$Ca(OH)_2$ (slightly)	NaOH	KOH	●○○○
48. Another example: Which base does NOT dissolve in water?	KOH	NaOH	$Fe(OH)_3$	NH_3	○○●○
49. Many household items such as soaps, detergents, shampoos and toothpaste contain:	Noble gases	Metals	Bases	Acids	○○●○
50. Acids have a _____ taste.	Sweet	Bitter	Salty	Sour	○○○●
51. Acids react with most metals to form a salt and:	Hydrogen	Carbon dioxide	Oxygen	Water	●○○○
52. Metal + acid →	Salt + water	Salt + hydrogen	Salt + CO_2	Base + hydrogen	○●○○
53. Zn + 2HCl →	$ZnCl_2 + H_2$	$ZnCl_2 + H_2O$	$ZnO + H_2$	$Zn(OH)_2 + H_2$	●○○○
54. Mg + H_2SO_4 →	$MgSO_4 + H_2O$	$MgO + H_2$	$Mg(OH)_2 + H_2$	$MgSO_4 + H_2$	○○○●
55. Hydrogen gas liberated by metal-acid reaction appears as:	A solid	Smoke	Bubbles	A precipitate	○○●○
56. Acids react with metal carbonates to give salt, water and:	Oxygen	Nitrogen	Hydrogen	Carbon dioxide	○○○●
57. Metal carbonate + acid →	Salt + hydrogen	Base + water	Salt + water + carbon dioxide	Salt + water only	○○●○
58. Na_2CO_3 + 2HCl →	$2NaCl + H_2O + CO_2$	$NaCl + H_2$	NaCl + CO	$NaOH + H_2$	●○○○
59. The acid reaction with carbonates is used in preparing glass, paper and:	Cement only	Soap	Plastic	Steel	○●○○
60. Limestone and marble are forms of:	Calcium chloride	Calcium carbonate	Calcium sulphate	Calcium oxide	○●○○
61. Acid + base →	Salt + water	Salt + CO_2	Metal + water	Salt + hydrogen	●○○○
62. The reaction of an acid with a base is called:	Polymerization	Combustion	Oxidation	Neutralization	○○○●
63. HCl + NaOH →	$NaCl + H_2$	NaOH + HCl	$NaClO + H_2$	$NaCl + H_2O$	○○○●

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Questions	A	B	C	D	A B C D
64. $H_2SO_4 + 2KOH \rightarrow$	$K_2SO_4 + H_2$	$KSO_4 + H_2O$	$K_2SO_4 + 2H_2O$	$KOH + H_2O$	○○●○
65. Normal rain is slightly acidic due to dissolved:	Nitrogen	Oxygen	Carbon dioxide	Argon	○○●○
66. Acid rain can damage structures, buildings and statues containing metals and:	Metal carbonates	Plastics	Glass only	Wood only	●○○○
67. Bases have a _____ taste.	Sour	Bitter	Sweet	Salty	○●○○
68. Bases change red litmus to:	Red	Green	Yellow	Blue	○○○●
69. Aqueous solutions of bases feel:	Rough	Slippery	Dry	Sticky	○●○○
70. Bases neutralize acids to form:	Salt and hydrogen	Acid and water	Salt and water	Salt and CO_2	○○●○
71. $H_2SO_4 + 2NaOH \rightarrow$	$Na_2SO_4 + H_2$	$Na + H_2SO_4$	$Na_2SO_4 + 2H_2O$	$NaSO_4 + H_2O$	○○●○
72. Bases decompose ammonium salts on heating to liberate:	Hydrogen gas	Ammonia gas	Oxygen gas	Chlorine gas	○●○○
73. $KOH + NH_4Cl \rightarrow$	$KCl + NH_4OH$	$K + NH_3$	$KNH_2 + HCl$	$KCl + NH_3 + H_2O$	○○○●
74. Bases are oxides and hydroxides of:	Halogens	Noble gases	Metals	Non-metals	○○●○
75. Metal + oxygen →	Metal acid	Metal oxide	Metal hydroxide	Metal salt	○●○○
76. $4Na + O_2 \rightarrow$	2NaO	$2Na_2O$	Na_2O_2 only	4NaO	○●○○
77. $2Mg + O_2 \rightarrow$	2MgO	$2Mg_2O$	Mg_2O	MgO_2	●○○○
78. Magnesium burns in air to produce:	Magnesium chloride	Magnesium oxide	Magnesium carbonate	Magnesium hydroxide	○●○○
79. Metal oxide + water →	Metal sulphate	Metal chloride	Metal hydroxide	Metal carbonate	○○●○
80. $Na_2O + H_2O \rightarrow$	NaO	NaH	Na_2OH	2NaOH	○○○●
81. $CaO + H_2O \rightarrow$	$Ca(OH)_2$	CaO_2	CaH_2	Ca_2O	●○○○

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Questions	A	B	C	D	A B C D
82. Oxide ions in water immediately accept protons and become:	Hydroxide ions	Oxygen	Hydrogen ions	Water	●○○○
83. Most metal oxides and hydroxides are very:	Acidic	Neutral	Basic	Gaseous	○○●○
84. Metal oxides and hydroxides that behave as both acids and bases are:	Neutral	Strong	Amphoteric	Volatile	○○●○
85. Which is an amphoteric oxide?	CaO	Na_2O	Al_2O_3	MgO	○○●○
86. Another example: Which is an amphoteric oxide?	ZnO	K_2O	Na_2O	MgO	●○○○
87. Which is an amphoteric hydroxide?	$Zn(OH)_2$	$Ca(OH)_2$	KOH	NaOH	●○○○
88. Which cannot be classified as an Arrhenius acid?	HNO_3	CO_2	H_2CO_3	H_2SO_4	○●○○
89. Which of the following is a Bronsted base?	CH_3COOH	NH_3	HCl	H_2SO_4	○●○○
90. Milk of magnesia contains:	$MgCO_3$	$Mg(OH)_2$	$MgCl_2$	MgO	○●○○
91. Milk of magnesia is used as an:	Painkiller	Antacid	Antiseptic	Antibiotic	○●○○
92. Milk of magnesia neutralizes excess stomach acid to form:	$MgCO_3$	$MgCl_2$	$MgSO_4$	MgO	○●○○
93. Ammonia is a base because it can:	Accept a proton	Release OH from itself	Donate a proton	Contain OH group	●○○○
94. The self-ionization of water is:	$H_2O + H_2O \rightarrow H_4O_2$	$2H_2O \rightleftharpoons H_3O^+ + OH^-$	$H_2O \rightleftharpoons H_2 + O_2$	$H_2O \rightarrow H_2 + O$	○●○○
95. The H_3O^+ ion is called the:	Ammonium ion	Oxonium salt	Hydroxide ion	Hydronium ion	○○○●
96. The OH^- ion is called the:	Hydronium ion	Oxide ion	Hydroxide ion	Ammonium ion	○○●○
97. The NH_4^+ ion is called the:	Hydroxide ion	Nitrate ion	Ammonium ion	Nitride ion	○○●○
98. $NH_4OH + HNO_3 \rightarrow$	$NH_2NO_3 + H_2$	$NH_4 + NO_3$	$NH_3 + HNO_3$	$NH_4NO_3 + H_2O$	○○○●

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Questions	A	B	C	D	A B C D
99. $H_2SO_4 + Mg(OH)_2 \rightarrow$	$MgO + H_2SO_4$	$Mg + H_2SO_4$	$MgSO_4 + H_2$	$MgSO_4 + 2H_2O$	○○○●
100. In $HNO_3 + H_2O \rightarrow H_3O^+ + NO_3^-$, HNO_3 is a Bronsted:	Catalyst	Acid	Base	Salt	○●○○
101. In $CH_3COOH + H_2O \rightarrow CH_3COO^- + H_3O^+$, water acts as a:	Acid	Salt	Catalyst	Base	○○○●
102. The conjugate base of HCl is:	Cl^-	H^+	H_2O	OH^-	●○○○
103. The ionization of acetic acid is shown with:	A double arrow (⇌)	A plus sign	A single arrow only	No arrow	●○○○
104. HCl acts as a strong acid because it:	Ionizes partly	Ionizes completely	Is a solid	Does not ionize	○●○○
105. The ionization of HCl in water is represented by:	$HCl \rightarrow H^+ + Cl^-$	$HCl \rightarrow H_2 + Cl_2$	$HCl \rightleftharpoons H + Cl$	$H + Cl \rightarrow HCl$	●○○○
106. An Arrhenius acid example is:	HCl	NaCl	H_2O	NaOH	●○○○
107. An Arrhenius base example is:	NaOH	NaCl	H_2SO_4	HCl	●○○○
108. Which table lists common acids in the book?	Table 10.1	Table 10.4	Table 10.3	Table 10.2	○○○●
109. Sulphuric acid is used in the manufacture of many chemicals and:	Plastic bags	Glass only	Fertilizers	Wood only	○○●○
110. Sodium hydroxide is used in making soap and:	Drain cleaners	Candles	Paints	Toothpaste	●○○○
111. Why do we use lemon juice on fish?	The acid neutralizes fishy-smelling bases	It adds salt	It colours fish	It cooks fish	●○○○
112. The sum of the protons donated by an acid in an aqueous solution gives _____ ions.	Na^+	OH^-	Cl^-	H_3O^+	○○○●
113. Acid rain is formed when _____ oxides dissolve in rainwater.	Argon	Helium	Sulphur and nitrogen	Carbon only	○○●○
114. Which pH value is acidic?	14	10	7	3	○○○●
115. Which pH value is basic?	1	3	7	10	○○○●

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116. A solution of pH 1 is:	Weakly acidic	Neutral	Strongly acidic	Basic	○○●○
117. A solution of pH 13 is:	Neutral	Strongly basic	Acidic	Weakly basic	○●○○
118. Litmus is used as an:	Solvent	Catalyst	Reactant	Indicator	○○○●
119. A base that is soluble in water is also called a(n):	Salt	Oxide	Alkali	Acid	○○●○
120. Which substance turns red litmus blue?	H_2SO_4	NaOH	HCl	NaCl	○●○○
121. Which substance turns blue litmus red?	NaOH	KOH	NaCl	HCl	○○○●
122. The product of reaction between an acid and a base other than water is a:	Gas	Metal	Salt	Acid	○○●○
123. The formula of the salt formed by H_2SO_4 and NaOH is:	Na_2S	$NaSO_4$	NaOH	Na_2SO_4	○○○●
124. The salt formed from HNO_3 and KOH is:	KN	KNO_2	K_2NO_3	KNO_3	○○○●
125. Zinc reacting with HCl produces zinc chloride and:	Hydrogen gas	CO_2	Oxygen gas	Water	●○○○
126. A metal carbonate reacting with acid will produce bubbles of:	O_2	N_2	H_2	CO_2	○○○●
127. Hydrochloric acid reacting with sodium carbonate forms sodium chloride, CO_2 and:	Oxygen	Hydrogen	Water	Ammonia	○○●○
128. Which does NOT happen when an acid reacts with a base?	Formation of water	Neutralization	Formation of salt	Production of hydrogen gas	○○○●
129. Bases are also called alkalis when they are:	Insoluble in water	Soluble in water	Gases	Metals	○●○○
130. Which of these is NOT an acid?	NaOH	H_2SO_4	HCl	HNO_3	●○○○
131. Aqueous solutions of acids contain _____ ions.	Cl^- only	OH^-	Na^+	H^+	○○○●
132. Aqueous solutions of alkalis contain _____ ions.	Cl^- only	H^+	OH^-	Na^+ only	○○●○

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Questions	A	B	C	D	A B C D
133. Strong acids and strong bases _____ dissociate in aqueous solution.	Slowly	Partially	Never	Completely	○○○●
134. Weak acids and weak bases _____ dissociate in aqueous solution.	Completely	Partially	Instantly	Never	○●○○
135. In the Bronsted-Lowry theory, a base need not contain:	Nitrogen	Lone pair	OH^- ion	Oxygen	○○●○
136. CO_2 is acidic because it forms _____ when it dissolves in water.	Carbonic base	Oxide	Salt	Carbonic acid	○○○●
137. The acid in vinegar is:	Acetic acid	Sulphuric acid	Citric acid	Nitric acid	●○○○
138. Antacid tablets are used to treat:	Pain	Fever	Cough	Acidity	○○○●
139. Baking soda is a:	Base (alkaline salt)	Strong acid	Metal	Noble gas	●○○○
140. A salt is formed when the H^+ of an acid is replaced by a:	Non-metal ion	Proton	Metal ion	Noble gas	○○●○
141. The reaction $Mg + 2HCl \rightarrow MgCl_2 + H_2$ shows that acids _____ metals.	Plate	Colour	Corrode	Protect	○○●○
142. In $Zn + 2HCl \rightarrow ZnCl_2 + H_2$, $ZnCl_2$ is a:	Acid	Salt	Oxide	Base	○●○○
143. In $2HCl + CaCO_3 \rightarrow CaCl_2 + H_2O + CO_2$, $CaCl_2$ is a:	Oxide	Acid	Base	Salt	○○○●
144. Acid rain can be reduced by controlling emissions of sulphur and nitrogen:	Salts	Metals	Oxides	Carbonates	○○●○
145. Ammonia, NH_3, dissolved in water gives:	NH_2^- and H^+	NO and H_2	N_2 and H_2	NH_4^+ and OH^-	○○○●
146. Which compound is both an Arrhenius base and a strong base?	NH_3	$Cu(OH)_2$	KOH	$Al(OH)_3$	○○●○
147. The unit that follows Acids, Bases and Salts in the book is:	Environmental Chemistry - Air	Organic Chemistry	Energetics	Chemical Equilibrium	●○○○
148. The unit before Acids, Bases and Salts is:	Energetics	Environmental Chemistry - Air	Chemical Equilibrium	Organic Chemistry	○○●○
149. A proton is a _____ ion.	Hydrogen	Hydroxide	Chloride	Oxide	●○○○
150. Water + CO_2 gives:	Carbonic base	Salt	Carbonic acid	Oxide	○○●○