

Chapter 1

Acids and Bases MCQs

MCQ 1: When an acid (H^+) is added to alkali (OH^-), the product is

- A. hydroxides
- B. water
- C. salts
- D. hydrogen gas

MCQ 2: $\text{K}_2\text{O} + \text{H}_2\text{O} \rightarrow$

- A. $\text{K}(\text{OH})_3$
- B. KOH
- C. $\text{KO} + \text{H}_2 + \text{O}_2$
- D. none of above

MCQ 3: What is correct about Mineral acids?

- A. they are naturally occurring
- B. they are man made
- C. they include malic acid
- D. none of above

MCQ 4: Excess acidity caused by acid rain can be neutralized by adding

- A. more fertilizers
- B. the acidified soil
- C. P_2O_5
- D. lime

MCQ 5: More corrosive acid is

- A. H_2CO_3
- B. H_2SO_3
- C. HNO_3
- D. $\text{C}_6\text{H}_8\text{O}_7$

MCQ 6: $\text{NaOH} + \text{HCl} \rightarrow$

- A. $\text{Na}(\text{OH})_2 + \text{H}_2$
- B. $\text{NaCl} + \text{H}_2$
- C. $\text{NaCl} + \text{H}_2\text{O}$
- D. $\text{NaCl} + \text{H}_2 + \text{O}_2$

MCQ 7: Phosphoric acid has the formula

- A. H_2PO_3
- B. H_2PO_4
- C. H_3PO_4
- D. H_3PO_3

MCQ 8: In Universal indicators, red color shows

- A. strong acids
- B. strong alkalis
- C. weak acids
- D. weak bases

MCQ 9: What is true about bases (OH^-)?

- A. they are corrosive
- B. they turn litmus from blue to red
- C. they turn litmus from red to blue
- D. they are non-metal oxides

MCQ 10: Acids (H^+) reacts with metal hydroxides ($-\text{OH}^-$) to form

- A. salt and water
- B. salt and hydrogen gas
- C. salt and hydrogen oxides
- D. salt and alkali

MCQ 11: Which one of them is found in apples?

- A. citric acid
- B. malic acid
- C. tartaric acid
- D. acetic acid

MCQ 12: Consider the equation $\text{P}_4\text{O}_{10} + \text{H}_2\text{O} \rightarrow \text{H}_3\text{PO}_4$. The number of moles of H_3PO_4 produced by the reaction are

- A. 2
- B. 4
- C. 6
- D. 8

MCQ 13: Which one is correct about Soap?

- A. it is acidic
- B. it is alkaline
- C. it is neutral
- D. it is basic

MCQ 14: An alkali (OH^-) is a

- A. water soluble base
- B. water insoluble base
- C. oil soluble base
- D. oil insoluble base

MCQ 15: In Universal indicators, a pH of 7 is shown with

- A. yellow color

- B. green color
- C. blue color
- D. pink color

MCQ 16: The chemical formula of Caustic soda is

- A. NaOH
- B. KOH
- C. MgO
- D. $\text{Ca}(\text{OH})_2$

MCQ 17: Bleach has an approximate of

- A. 5
- B. 8
- C. 11
- D. 14

MCQ 18: In Universal indicators, weak alkalis are indicated through

- A. turquoise color
- B. blue color
- C. light violet color
- D. all of above

MCQ 19: What is true about orange juice?

- A. they are acidic
- B. they are alkaline
- C. they are neutral
- D. they are basic

MCQ 20: Which of the following is the best indicator?

- A. litmus indicator
- B. universal indicator
- C. methyl orange indicator

D. Phenolphthalein indicators

MCQ 21: Consider the equation $\text{PbO} + \text{HCl} \rightarrow \text{PbCl}_2 + \text{H}_2\text{O}$, Moles of HCl required to balance the equation are

- A. 1
- B. 2
- C. 3
- D. 4

MCQ 22: $\text{NH}_4\text{Cl}(\text{s}) + \text{NaOH} \rightarrow$

- A. $\text{Na}_2\text{CO}_3 + \text{H}_2 + \text{NO}_2$
- B. $\text{Na}_2\text{CO}_3 \cdot (\text{H}_2\text{O})_5 + \text{HCl}$
- C. $\text{NaCl} + \text{H}_2\text{O} + \text{NH}_3$
- D. $\text{NaCl} + \text{HNO}_3$

MCQ 23: Non-metal oxides showing no reaction with acids or alkalis are called as

- A. Amphoteric acids
- B. neutral oxides
- C. acidic oxides
- D. basic oxides

MCQ 24: Amphoteric oxides react with acids to form a

- A. salt only
- B. water only
- C. sweet base
- D. salt and water

MCQ 25: Lemon juice has a pH of

- A. 2
- B. 6

- C. 8
- D. 12

MCQ 26: What is true about baking powder?

- A. it is acidic
- B. it is alkaline
- C. it is neutral
- D. it is salty

MCQ 27: the pH of 7 is shown through a color of

- A. red
- B. blue
- C. green
- D. yellow

MCQ 28: Acid shows red color with

- A. litmus indicator
- B. universal indicator
- C. methyl orange indicator
- D. all of above

MCQ 29: Insect bites and stinging nettles contain

- A. formic acid
- B. tartaric acid
- C. oxalic acid
- D. malic acid

MCQ 30: Seawater has a pH of

- A. 5
- B. 7
- C. 9
- D. 11

MCQ 31: Weak acids include

- A. H_2CO_3 only
- B. H_2SO_3 only
- C. H_2SO_4
- D. H_2CO_3 and H_2SO_3

MCQ 32: Acid becomes colorless when added with

- A. screened methyl orange indicators
- B. phenolphthalein indicator
- C. litmus indicator
- D. universal indicator

MCQ 33: Acids react with metal carbonates to form

- A. salt
- B. water
- C. carbon dioxide
- D. all of above

MCQ 34: Which one is correct about Onion juice?

- A. it is acidic
- B. it is alkaline
- C. it is neutral
- D. it is basic

MCQ 35: Universal indicator can be used to test

- A. acids only
- B. alkalis only
- C. concentration of solution
- D. acids and alkalis

MCQ 36: pH values have a range of

- A. 1 to 7
- B. 0 to 10
- C. 1 to 14
- D. 0 to 14

MCQ 37: Rainwater has a pH of

- A. 1
- B. 3
- C. 5
- D. 7

MCQ 38: The stronger the acid, the

- A. less the hydrogen ions be
- B. the more the hydrogen ions be
- C. the more the covalence be
- D. the more the hydroxyl ions

MCQ 39: Acidic oxides do not include

- A. CO_2
- B. SO_2
- C. P_2O_5
- D. PbO

MCQ 40: When neutral, indicators show

- A. red color
- B. blue color
- C. yellow/green color
- D. pink color

MCQ 41: $\text{Mg} + \text{H}_2\text{SO}_4 \rightarrow$

- A. $\text{MgSO}_4 + \text{H}_2\text{O}$
- B. $\text{MgSO}_4 + \text{H}_2$
- C. $\text{MgO} + \text{H}_2$
- D. $\text{MgO} + \text{H}_2 + \text{SO}_2$

MCQ 42: In neutralization reactions, conductivity meters are an ideal choice to

- A. record change in pH
- B. measure and remove the H^+ and OH^- ions
- C. record heat given out
- D. measure the amount of current flowing

MCQ 43: Less corrosive acid is

- A. H_2CO_3
- B. H_2SO_4
- C. HNO_3
- D. HCl

MCQ 44: What are the products of the given reaction? $\text{CO}_2 + \text{H}_2\text{O} \rightarrow$

- A. CO
- B. H_3O
- C. H_2CO_3
- D. $\text{CO}_2 + \text{OH}^-$

MCQ 45: Sugar ($\text{C}_n\text{H}_{2m}\text{O}_m$) is

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

MCQ 46: With acids, universal indicators show a color

- A. of red
- B. of blue
- C. of green
- D. of violet

MCQ 47: A base is a class of chemical substances which includes all

- A. metal oxides
- B. metal hydroxides
- C. non-metal oxides
- D. none of above

MCQ 48: In Universal indicators, a pH of 4 to 7 indicates

- A. strong acids
- B. weak acids
- C. weak alkalis
- D. strong alkalis

MCQ 49: H_2SO_4 is the formula of

- A. Sulfatic acid
- B. Sulfuric acid
- C. Sulfurous acid
- D. Hydrogen Sulfide

MCQ 50: $\text{HCl}_{(\text{g})}$ dissolved in Methylbenzene (C_7H_8) shows no change on litmus paper because

- A. it is highly acidic
- B. no free hydrogen protons are available
- C. the solution is highly ionic
- D. the solution contains hydroxyl ions only

MCQ 51: Amphoteric oxides react with an alkali to form

- A. salt only

- B. water only
- C. acids
- D. salt and water

MCQ 52: Soda water ($\text{H}_2\text{CO}_{3(\text{aq})}$) has a pH of

- A. 1
- B. 2
- C. 3
- D. 4

MCQ 53: Consider the equation $\text{Al}_2\text{O}_3 + \text{NaOH} + \text{H}_2\text{O} \rightarrow \text{NaAl}(\text{OH})_4$. Balancing of the equation requires how many moles of NaOH?

- A. 1
- B. 2
- C. 3
- D. 4

MCQ 54: Which of the following has a pH of 7?

- A. sugar solution only
- B. salt solution only
- C. strong acids
- D. sugar and salt solution

MCQ 55: In the presence of phenolphthalein, alkali shows

- A. blue color
- B. violet color
- C. pink color
- D. green color

MCQ 56: Acidic oxides neutralize

- A. bases only
- B. alkalis only