8.2 More About Acids

Question Paper

Course	DP IB Chemistry
Section	8. Acids & Bases
Topic	8.2 More About Acids
Difficulty	Medium

Time allowed: 20

Score: /10

Percentage: /100

Question 1

Determine which of the following solutions would be basic at 25 °C?

$K_w = 1.0 \times 10^{-14}\,mol^2\,dm^{-6}$

A. $[H^+] = 1.0 \times 10^{-2}\,mol\,dm^{-3}$

B. $[OH^-] = 1.0 \times 10^{-12}\,mol\,dm^{-3}$

C. solution of pH = 5.00

D. $[H_3O^+] = 1.0 \times 10^{-12}\,mol\,dm^{-3}$

[1 mark]

Question 2

Calculate the pH of a solution of NaOH of concentration $0.001\,mol\,dm^{-3}$

A. 1

B. 3

C. 11

D. 13

[1 mark]

Question 3

Carbon dioxide reacts with water to form carbonic acid which can be represented in the following equation

$$CO_2(g) + H_2O(l) \rightleftharpoons H^+(aq) + HCO_3^-(aq)$$

If the pressure is raised, what will happen to the position of equilibrium and the pH?

A. The equilibrium shifts to the right and pH increases

B. The equilibrium shifts to the right and pH decreases

C. The equilibrium shifts to the left and pH increases

D. The equilibrium shifts to the left and pH decreases

[1 mark]

Question 4

When comparing the separate reactions of 0.5 g magnesium metal with equal volumes and concentrations of hydrochloric acid and ethanoic acid you can say that the

A. Hydrochloric acid reacts faster than ethanoic acid as its pH is higher

B. More gas is produced with hydrochloric acid than with ethanoic acid

C. An equal volume of gas is produced with both hydrochloric acid and ethanoic acid.

D. Ethanoic acid reacts more slowly than hydrochloric acid because its pH is lower

[1 mark]

Question 5

A beaker contains 50 cm^3 of sodium hydroxide solution and its pH is measured as 11.
If 450 cm^3 of water is added to the beaker, what will be the new pH of the solution?

A. 3

B. 9

C. 10

D. 11

[1 mark]

Question 6

In the table below are the formulae of some acids and bases. Which row shows only weak acids and weak bases?

A	CH_3NH_2	$Ba(OH)_2$	HCOOH
B	CH_3CH_2COOH	$C_6H_5NH_2$	HCOOH
C	NH_3	HNO_3	CH_3CH_2COOH
D	NH_3	KOH	H_2CO_3

[1 mark]

Question 7

Three solutions of hydrochloric acid of different concentrations are shown below

X. 0.100 mol dm^{-3}

Y. 0.001 mol dm^{-3}

Z. 0.010 mol dm^{-3}

If these solutions are arranged from **lowest** to **highest pH,** then the order is

A. X < Y < Z

B. X < Z < Y

C. Y < X < Z

D. Y < Z < X

[1 mark]

Question 8

Which of the following statements is correct?

A. As temperature increases, the pH value of pure water decreases

B. As temperature decreases, the pH value of pure water decreases

C. The pH of water is unaffected by temperature

D. Pure water is not neutral

[1 mark]

Question 9

Which row shows the correct properties of 0.1 mol dm^{-3} LiOH?

	pH	Electrical conductivity	Universal indicator colour
A	10	poor	green
B	13	good	purple
C	10	poor	red
D	13	poor	blue

[1 mark]

Question 10

Equal volumes of hydrochloric acid of different concentrations are added to four beakers, A, B, C and D. Equal volumes of 1.0 mol dm^{-3} sodium hydroxide are then added to the beakers and the pH is measured.

Beaker	A	B	C	D
pH	1	5	7	13

Which beaker contains the most concentrated solution of hydrochloric acid?

A. Beaker A

B. Beaker B

C. Beaker C

D. Beaker D

[1 mark]