Basics of acid base balance

1- Control of [H+] is so important because:

A. *H ions are highly reactive chemical species.**
B. *H ions are low reactive chemical species.*
C. *Acid-base balance can cause cardiac arrhythmias and abnormal neuronal excitation.*
D. *None of these.*

2- All enzymes function optimally at pH ~ 7.4:

A. *True.*
B. *False.**

3- Acids are:

A. *a measure of the acidity of the solution.*
B. *ions or molecules that can accept H+.*
C. *Molecules containing hydrogen atoms that can donate H+ into solution.**
D. *Relative concentrations of CO2 and HCO3- in plasma / ECF.*

4- An example of acid:

A. *HCl.**
B. *HCO3-.*
C. *NH3.*
D. *HAEMOGLOBIN.*

5- An example of weak base:

A. *Chloride acid.*
B. *Hydrogen ion.*
C. *Carbon dioxide.*
D. *Ammonia.**

6- Which of the following is true:

A. *every acid has a conjugate acid and every base have a conjugate base associated with it.*
B. *every acid has a conjugate base and every base have a conjugate acid associated with it.**
C. *every acid has a conjugate base but not every base have a conjugate acid associated with it.*
D. *every base has a conjugate acid but not every acid have a conjugate base associated with it.*

7- Water is:

A. *Acid.*

B. Base.
*C. depend on the added compound.**

8- When water behaves as a base it forms:

A. Hydroxide.
B. Carbonic acid.
*C. hydronium ion.**
D. Bicarbonate.

9- The pH of a solution depends on:

A. The concentration of the solution.
B. The type of the acid.
*C. Both the concentration of the solution and the type of the acid.**
D. None of these.

10- pH measure:

A. The strength of an acid.
*B. The acidity of a given solution.**
C. None of these.

11- How much of hydronium ions does a solution of pure water has:

*A. 10–7 mol dm–3.**
B. 10–9 mol dm–3.
C. 7–10 mol dm–3.
D. 9–10 mol dm–3.

12- Which of the following is not acid:

A. H3PO4.
*B. HPO4-2.**
C. H2CO3.
D. C3H4O3.

13- The normal pH is:

A. *6.4.*
B. *9.4.*
C. *7.4.**
D. *5.4.*

14- If the pH is 8 the grams of H+ per liter is:

A. *0.1.*
B. *0.000001.*
C. *0.0001.*
D. *0.00000001.**

15- Blood pH maintained by:

A. *One system.*
B. *Two systems.*
C. *Three systems.**
D. *Four systems.*

16- Death likely:

A. *If pH is just above 7.8.*
B. *If pH is just below 6.8.*
C. *If pH is above 7.8 or below 6.8.**
D. *None of these is true.*

17- Normally all volatile acid excreted by:

A. *The lungs.**
B. *The kidney.*
C. *The liver.*

18- The most powerful system of body's acid-base regulatory systems is:

A. *The kidney system.**
B. *The lungs system.*
C. *The buffers system.*

19- What happen to the pH if the HCO3 in plasma remains normal but Pco2 decrease:

A. *Acidosis.*
B. *Alkalosis.**
C. *Acid-bace balance.*
D. *Have no relation with Acid-bace balance.*

20- What happen to the pH if Pco2 remains normal but bicarbonate increase:

A. *Acidosis.*
B. *Alkalosis.**
C. *Acid-bace balance.*
D. *Have no relation with Acid-bace balance.*

21- What is the correct sequence of events:

A. *Conversion of H2CO3 to CO2 and H2O.**
B. *Conversion of HCO3 to H+ and CO3.*
C. *Conversion of H2O to CO2 and H+.*
D. *None of the above.*

22- In which of the following fluids is the pH highest (most alkaline)? (Assume the person is normal.):

A. *Systemic arterial blood plasma.**
B. *Systemic venous blood plasma.*
C. *Urine.*
D. *All of the above, since pH is normally of the same for all.*
E. *A and B above, since blood plasma pH is relatively uniform.*

Answers:

Q1: A

Q2: B

Q3: C

Q4: A

Q5: D

Q6: B

Q7: C

Q8: C

Q9: C

Q10: B

Q11: A

Q12: B

Q13: C

Q14: D

Q15: C

Q16: C

Q17: A

Q18: A

Q19: B

Q20: B

Q21: A

Q22: A | *Systemic arterial blood has a higher (more alkaline) pH than systemic venous blood because of the CO2 added by metabolizing cells as blood passes through the systemic vascular beds. Urine is generally more acid than plasma because of the necessity of excreting the excess fixed (non-volatile) acids created by metabolism.*