Exam 1 Test Prep
09/24

- Define Biochemistry

- What is the cell membrane made of?

- What type of organism(s) have a cell wall? What are their respective cell walls made of?

- Define permeable and semi-permeable

- What are the five classifications of molecules? (Think hierarchy)

- Name a few essential ions.

- What are the 6 essential atoms?

- What are the five molecular interactions? Define them.

- Define Redox Reaction

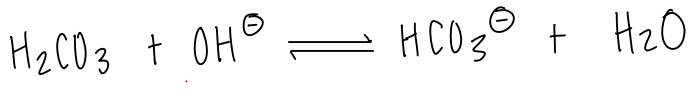
- Define Bronsted Acid and Bronsted Base.

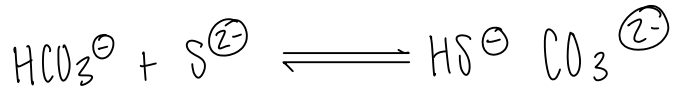
- How do we know if an acid is weak? How do we determine if an acid is a strong weak acid of a weak weak acid?

- Derive the Henderson Hasselbach equation.

- What is the significance of the pKa dissociation curve?

- Label the conjugate pairs.





- Define what it means to be a strong acid and a weak acid

- Define pKa

- Define pH and list the formula used to calculate it

- What is a buffer?

- Calculate the pH of a buffer solution containing 0.1 M of sodium acetate and 0.2 of acetic acid. pKa of acetic acid = 4.76

- Calculate the pH of a solution containing 150 mL of 0.3 M Sodium Benzoate and 220 mL of 0.4 M Benzoic acid, AFTER the addition of 42 mL of 0.1 M KOH (KOH is a strong base). pKa of benzoic acid is 4.2

- From the question above, what is the pH difference between the solutions before the addition of KOH and after the addition of KOH? Did we exceed the buffering capacity of the solution?

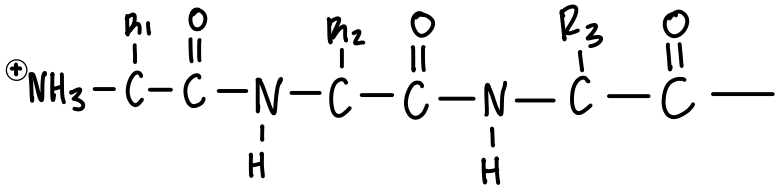
- In the general structure of an amino acid, what must be present?

- Draw all 20 amino acids, include their 3 letter & 1 letter codes.

- What is a peptide bond?

- What is a dipeptide?

- Using the image below, explain what you see, and identify the need-to-know structures.



- Define primary structure. Include an example.

- Define secondary structure.

- Define tertiary structure.

- Define quaternary structure.

- What amino acid forms disulfide bridges?

- How are subunits distinguished?

- What is the function of a protein? (most generalized answer you can think of)

- If given GLWA:
    a. Give the 3 letter code

    b. Give the full amino acid name

    c. Draw the polypeptide

- What are proteins analogous to?