

**Quiz: Lecture 3.5**  
**Principles of Electronic Nanobiosensors**  
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Answer the **five questions** below by choosing the **one, best answer**.

- 1) Which is following statement is true
  - a) **Some of the Amino Acids do not carry any charge.**
  - b) Charge of DNA is fixed, independent of pH.
  - c) The isoelectric point of all proteins is exactly the same.
  - d) A DNA nucleotide may have charge greater than 3, depending on the pH.
  
- 2) If pH changes from 7 to 6, the total charge of a DNA will
  - a) Increase.
  - b) **Decrease.**
  - c) Stay about the same.
  - d) Could be positive or negative.
  
- 3) If pH changes from 7 to 6, the total charge of a protein will
  - a) Increase.
  - b) Decrease.
  - c) Stay about the same.
  - d) **Depends on the protein.**
  
- 4) The screening length is defined for the self-consistent solution of
  - a) The biomolecules only.
  - b) **All the positive and negative ions in the solution.**
  - c) Only by the protons.
  - d) Only by the salt ions.
  
- 5) Maximum potentiometric sensitivity occurs when the pH is set to
  - a) **Point of zero charge of the surface.**
  - b) Point of zero charge of the molecule.
  - c) Point of zero charge of the reference electrode.
  - d) Exactly at 7.

**End of quiz. This quiz contains 5 questions.**