Quiz: Lecture 3.2
Principles of Electronic Nanobiosensors
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Answer the five questions below by choosing the one, best answer.

1) Salt is ionized (dissociated) in water because
   a) Water is a good solvent for all materials.
   b) The ionic attraction between Na and Cl is reduced by water.
   c) Salt molecules are dissociated by the kinetic energy of water molecules.
   d) None of the above.

2) At low salt concentration, the screening distance is given by
   a) The Debye length.
   b) Fractal dimension.
   c) Peclet number.
   d) Size of the molecule.

3) The Debye length depends on
   a) The salt concentration.
   b) Dielectric constant of the fluid.
   c) Temperature of the fluid.
   d) All of the above.

4) Gouy-Chapman theory is used to calculate the effect of salt screening at high salt concentration. At high salt concentration, the charges of the biomolecules are
   a) mostly neutralized by salt.
   b) mostly neutralized by the MOSFET charge.
   c) Divided equally between MOSFET and salt.
   d) None of the above.

5) The Gouy-Chapman theory as discussed in the lecture
   a) Is appropriate for salt concentration found in physiological conditions.
   b) Explains the logarithmic dependence of the potentiometric sensor on salt concentration.
   c) Explains the logarithmic dependence of the potentiometric sensor on analyte concentration.
   d) All of the above.

End of quiz. This quiz contains 5 questions.