Quiz: Lecture 3.4
Principles of Electronic Nanobiosensors
Muhammad A. Alam, nanoHUB-U Fall 2013

Answer the **six questions** below by choosing the **one, best answer**.

1) The acronym pH stands for

   a) Prospect of Helium.
   b) Prospect of Hydrogen.
   c) Potential of Hydrogen.
   d) Potential of Helium.

2)   Addition of a base to water

   a) Reduces the proton content.
   b) Increase the pH.
   c) Reduces pOH.
   d) All of the above.

3)   The sum of pH and pOH in water is always equal to

   a) 7
   b) 10
   c) 14
   d) 20

4)   The pH in the human body is tightly controlled between 7.35 -7.45. If the maximum pH sensitivity given by the Nernst relationship is 59 mV/pH, what is the maximum change in voltage you expect from a pH meter for human being?

   a) 5.9 mV
   b) 7.4 mV
   c) 59 mV
   d) cannot be determined.

5)   The key to using a FET transistor as a pH-meter is,

   a) Making it small.
   b) Changing the oxide.
   c) Using a reference electrode.
   d) Removing the metal electrode so that oxide is exposed to the pH of the solution.

6) An ideal graphene surface exposed to water cannot be used as a pH-meter, because

   a) The surface has no dangling bonds that can react to the pH of the solution.
   b) It is a two dimensional material; 2D material has no pH sensitivity.
   c) Graphene is not an oxide; only oxides have pH sensitivity.
   d) None of the above.

End of quiz. This quiz contains 6 questions.