

**Lecture 4.3 Quiz**  
**Principles of Electronic Nanobiosensors**  
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Answer the **five questions** below by choosing the **one, best answer**.

- 1) A centrifuge is used to differentiate biomolecules of different
  - a) Masses.
  - b) Charge states.
  - c) Electron affinity.
  - d) Geometrical shapes.
  
- 2) After 4 cycles of PCR, the original number of ss-DNA has been amplified by a factor of
  - a) 2
  - b) 4
  - c) 8
  - d) 16
  
- 3) In a small sample volume, the DNA amplification may cease completely because
  - a) Insufficient time for annealing or denaturation.
  - b) Finite amount of primers for copying DNA
  - c) Insufficient temperature control.
  - d) None of the above.
  
- 4) Tags are attached to biomolecules in order to:
  - a) Make the biomolecules diffuse faster.
  - b) Distinguish target biomolecules from parasitic ones.
  - c) Make attachment to sensors easier.
  - d) Improve the sensitivity of potentiometric sensors.
  
- 5) We have used two approaches to describe the selectivity problem – a matrix approach (matrix elements describing ‘false positive’ vs. ‘false negative’) vs. a communication channel approach. These approaches are:
  - a) Essentially the same.
  - b) Completely different – each sensor can only be described by one or the other.
  - c) Similar, but with very important differences.
  - d) One applies to tag-based approach, the other to ‘space/energy’ selectivity problems.

End of quiz. This quiz contains 5 questions.