

# Problem Set #7

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## Tech and Methods 2

**Question 1:** List the materials required for running a PCR.

**Answer:**

**Question 2:** Name the steps that constitute one PCR cycle and indicate what the nominal temperature of these steps are for a standard PCR. What is a standard cycle number for a standard PCR?

**Answer:**

**Question 3:** In agarose gel electrophoresis one can use different percentages of agarose. What influence does the agarose concentration have on DNA migration through the gel?

**Answer:**

**Question 4:** In agarose gel electrophoresis, does DNA migrate towards the anode or cathode, and why?

**Answer:**

**Question 5:** What is a DNA ladder, what is it made of, and what is it used for?

**Answer:**

**Question 6:** In real-time PCR, what gives an indication of the original DNA concentration that was amplified?

**Answer:**

**Question 7:** What is the main difference between a “standard” PCR and an isothermal PCR?

**Answer:**

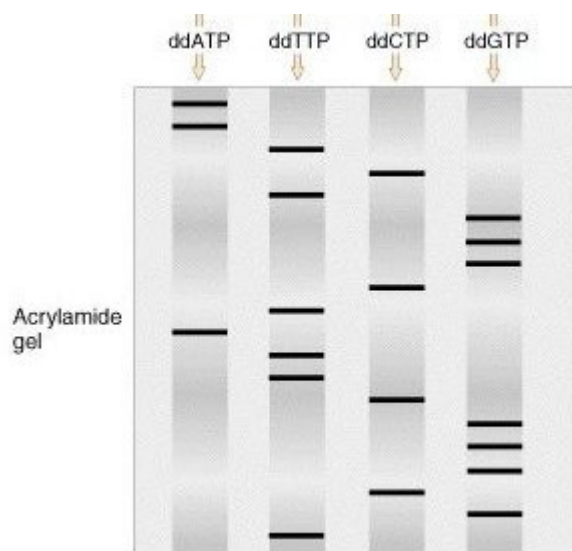
**Question 8:** How does Gibson assembly work?

**Answer:**

**Question 9:** What are the major advantages and disadvantages of microarray based oligo synthesis compared to standard column synthesis?

**Answer:**

**Question 10:** What is the DNA sequence based on the Sanger DNA sequencing gel shown below?



**Answer:**