

Assignment: How PCR works

QUESTION 1

The purpose of the polymerase chain reaction (PCR) is to

- synthesize DNA polymerase
- get the sequence of a piece of chromosomal DNA
- synthesize specific pieces of mRNA
- make many copies of a single DNA segment
- synthesize new specific primers

QUESTION 2

Which of the following is NOT found in a PCR reaction?

- DNA polymerase
- free nucleotides
- all are required for PCR
- helicase
- primers

QUESTION 3

What is the "template" in a PCR reaction?

- none of the other answers is correct
- the enzyme that generates new DNA
- the DNA that will be copied
- a gauge, pattern or mold

QUESTION 4

What is the purpose of primers in a PCR reaction?

- DNA polymerase requires an existing 3 prime hydroxyl group to which it can add free nucleotides
- DNA polymerase requires an existing 5 prime hydroxyl group to which it can add free nucleotides
- None of the other choices are correct
- DNA polymerase requires the template DNA strand is coated with methyl groups
- DNA polymerase requires an existing 3 prime phosphate group to which it can add free nucleotides

QUESTION 5

What is the purpose of the hottest portion of the PCR temperature cycle (usually around 95C)?

- it allows the polymerase to become active
- it separates the template strands of DNA
- it melts the entire reaction
- it allows the primers to anneal to the template

QUESTION 6

What does it mean to "denature" DNA?

- the two strands of DNA separate
- the helix straightens out
- the phosphodiester bonds in the DNA break

QUESTION 7

What does it mean when we say that primers anneal to the template?

- the DNA cools slowly and coils up
- primers bind where they are complementary to the template DNA
- none of the other answers is correct
- the internal stress in the primers is reduced

QUESTION 8

What is the "extension" step in PCR?

- the genomic DNA gets longer
- the primers get longer
- DNA polymerase adds nucleotides

QUESTION 9

The amount of target DNA

- doubles after each cycle of the PCR
- quadruples after each cycle of the PCR
- is multiplied by 1000 after the first cycle of PCR
- triples after each cycle of the PCR
- stays the same through all of the cycles of PCR

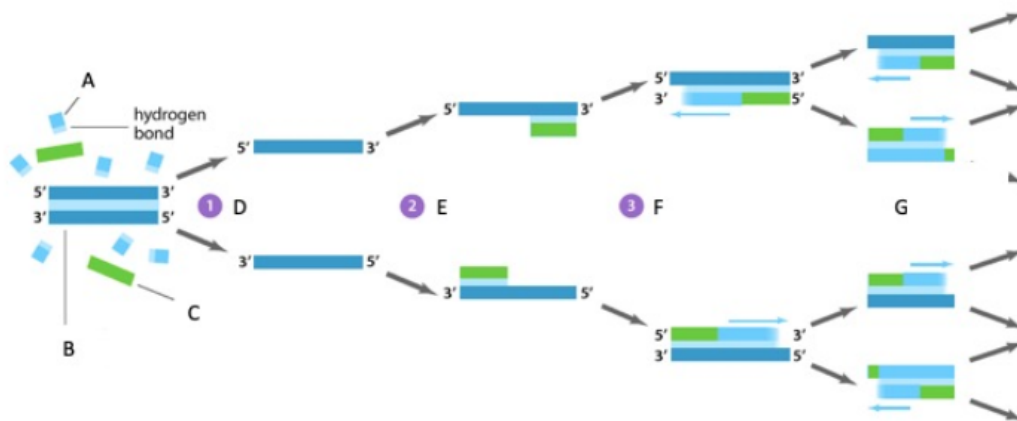
QUESTION 10

If we used different PCR primers, how would the results of the PCR reaction change?

- the DNA would be cut at a different location
- a different region of DNA would be copied
- none of the other answers is correct
- the DNA wouldn't properly stick together

QUESTION 11

Identify each item or step in the PCR reaction



- Extension
- Primer
- Repeat the prior steps
- Nucleotide
- Anneal primers
- Denature DNA
- Repeat the prior steps
- Template

