



Exploring the World of Science

University of Michigan Science Olympiad
2021 Invitational Tournament

Designer Genes C

Test length: 50 Minutes

Team name: _____ **Team number:** _____

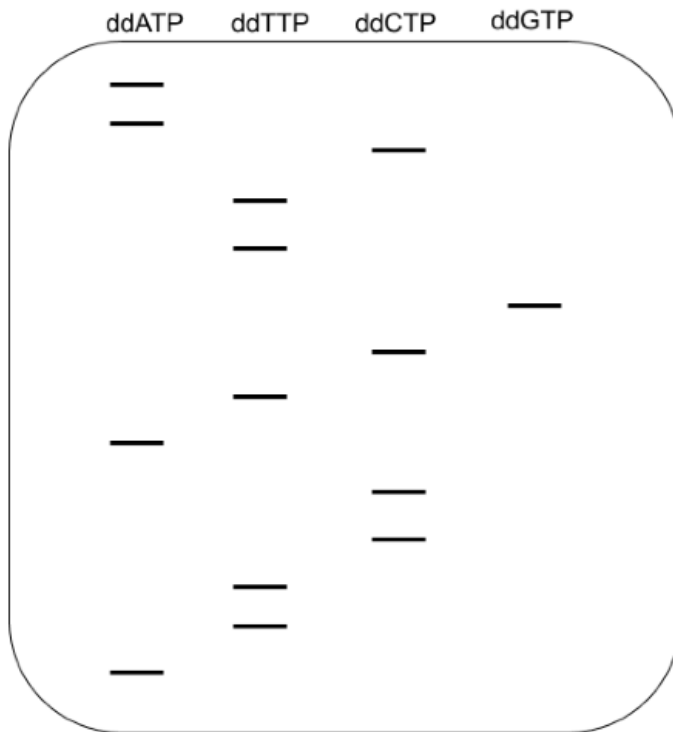
Student names: _____



2021 Designer Genes Exam

Short Answer

1. Explain how the origin of replication differs between eukaryotes and prokaryotes. (1 pt)
2. A point mutation occurs, changing the third base pair in a codon. The resulting amino acid is tryptophan. What was the wildtype amino acid? (1 pt)
- 3.



What is the 5' → 3' nucleotide sequence for this strand of DNA?

4. You are cloning a gene into *E. coli*. On the plasmid you want to insert, you also include an antibiotic resistance gene. How will you grow only the bacteria that have the desired plasmid? (1 pt)

