

Microbiology Fundamentals / OC2
Microbial Genetics and Genetic Engineering
C8 Study Guides

- 1 What is genetics?
- 2 What is a genome?
- 3 What is a chromosome?
- 4 What is the difference between a genotype and phenotype?
- 5 What is a nucleotide?
- 6 What are the nucleotides used to make DNA?
- 7 What are the nucleotides used to make RNA?
- 8 What is semiconservative replication and why is it important?
- 9 Describe the function of these enzymes? helicase, DNA polymerase, Ligase, Primase
- 10 What is the first step in expressing a gene's information?
- 11 What is the difference between the DNA's template and coding strand? Which one is copied to make mRNA?
- 12 What is the second step in expressing a gene's information?
- 13 What is the function of the base triplet, codon, and anticodon?
- 14 What is a polyribosome complex?
- 15 What three types of RNA are directly involved in translation?
- 16 How is transcription and translation different in prokaryotes and eukaryotes?
- 17 What is an operon? Do eukaryotes have operons?
- 18 What are three important features associated with the lactose operon?
- 19 What is phase variation?
- 20 What is recombination?
- 21 What is horizontal gene transfer?

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- 22 What is vertical gene transfer?
- 23 What are two methods which would result in horizontal gene transfer?
- 24 Describe these types of genetic recombination: conjugation, transformation, and transduction
- 25 May transformation occur in eukaryotes? Explain
- 26 What is transfection?
- 27 What is specialized transduction and how may this be responsible for profound physiologic effects to humans when infected by bacteria exhibiting specialized transduction?
- 28 What are “jumping genes”? Explain
- 29 What is the difference between a wild and mutant strain of bacteria?
- 30 What is the difference between a spontaneous and induced mutation?
- 31 What is the difference between a missense and nonsense mutation?
- 32 What is a frame shift mutation more of a problem than a point mutation?
- 33 Are mutations good or bad for the bacteria? Explain
- 34 What was the discovery in 1971 that resulted in the creation of genetic engineering?
- 35 What is a palindrome?
- 36 Describe the action of a restriction endonuclease?
- 37 What is a polymerase chain reaction?
- 38 What is the primary intent of recombinant DNA technology?
- 39 What is gene cloning?

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Microbial Metabolism - C8 Study Guides

Word Bank:

chromosome

gene

transcription

translation

base triplet

codon

anticodon

operon

recombinant

conjugation

transformation

transduction

transposons

mutation

restriction endonucleases