

# Unit 5 Test Review

## HONORS BIOLOGY: UNIT 5

**Directions:** Answer the following questions using your notes, textbook, and labs we have completed on protein synthesis.

1. Describe and draw a diagram of the processes below (*include where it occurs, what molecules are involved, sequence of events, and what results from each process*):

### Replication:

### Transcription:

### Translation:

2. **Genes** contain instructions for producing \_\_\_\_\_.
3. **Cancer** is a disorder in which some cells have lost the ability to control what?
4. **Mutations** that affect a single gene normally occur during \_\_\_\_\_.
5. **Mutations** that affect multiple genes normally occur during \_\_\_\_\_.

6. How might a **mutation** affect the resulting **protein** produced?
  
  
  
  
  
  
  
  
  
  
7. What is a **codon** and what does it do?
  
  
  
  
  
  
  
  
  
  
8. What is an **anticodon** and what does it do?
  
  
  
  
  
  
  
  
  
  
9. How many **codons** would it take to code for 5 amino acids?
  
  
  
  
  
  
  
  
  
  
10. How many **nitrogen bases** does it take to code for 5 amino acids?
  
  
  
  
  
  
  
  
  
  
11. Why is it possible for an **amino acid** to be specified by more than one kind of codon?
  
  
  
  
  
  
  
  
  
  
12. What are the three types of **RNA**, where are they found and do they do?
  
  
  
  
  
  
  
  
  
  
13. What is the **monomer** of a **protein**?
  
  
  
  
  
  
  
  
  
  
14. What is the **monomer** of a **nucleic acid**?

15. What are the similarities and differences of DNA and RNA?

**Similarities:**

**Differences:**

16. If one side of a DNA molecule contains the following sequence of nucleotides, **GCATTCGCA**, the complementary sequence on the other side would be:

17. What would the mRNA molecule look like that is transcribed from the following DNA sequence? **GCATTCGCA**

18. How do replication, transcription, and translation differ in **prokaryotes** and **eukaryotes**?

19. **Lactose Intolerance**, also known as lactase persistence, is caused by?

20. What is the variable portion of a **nucleotide**?

21. Even though there are only 20 amino acids thousands of different types of proteins can be made in the human body. How is this possible?

22. Why is it possible that a **mutation** may not affect the **phenotype** of an individual?

23. What is the difference between a **germ cell** and a **somatic cell**? (Where are they found and how are they made?)

24. What type of organic molecule is **lactose**?

25. What type of organic molecule is **lactase**?

26. What was the **control** in the Lactose Intolerance lab?

27. Which molecule was the **substrate** in the Lactose Intolerance lab?

28. Write a “word” **equation** for the breakdown of lactose. (*Include all reactants and products.*)

29. Why is **lactose tolerance** also called **lactase persistence**?