**Unit 6 Test: DNA & Mutations Review**

**Directions**: Write the answer only on your paper.

1. Why is the nucleus called the control center of the cell?
2. Tell the three parts that make up a nucleotide – the monomers of DNA.
3. Describe the shape of DNA.
4. What is the sugar found in DNA?
5. Choose the correct base pair.
   1. A bonds with T
   2. G bonds with A
   3. T bonds with C
   4. A bonds with C
6. Choose the correct base pair.
   1. G bonds with T
   2. G bonds with A
   3. G bonds with C
   4. A bonds with C
7. Describe the 3 main functions of DNA.
8. Which is the enzyme that **begins** the process of DNA replication by cutting the strands apart (unzip)?
9. Which term matches this definition: each base pairs with one base on the opposite strand?
10. Which term best explains that DNA replicates saving half the old strand to make the new strand?
11. Choose the most complete answer: When does DNA replicate?
12. The sugar, base, and phosphate are three parts of this
13. Which bond type holds bases of different strands together (and is broken when unzipped)?
14. After the two strands of DNA have been separated, which enzyme finds and joins nucleotides to build the new strand of DNA?
15. If DNA Polymerase makes a mistake when adding the new bases, what can it do?
16. What is the end product of DNA replication?
17. Choose the **false statements**. *There are more than one!*
    1. DNA stands for ribonucleic acid
    2. DNA is in all living things and viruses
    3. DNA is in the nucleus of eukaryotes & in the cytoplasm of prokaryotes
    4. Deoxyribose is a phosphate
    5. A bonds with G, G bonds with C
    6. Transmitting DNA refers to passing on traits through genes to offspring
    7. DNA Polymerase can add new bases, but cannot proofread its work
    8. The end products of DNA replication are 2 identical molecules of DNA
18. What could cause a mutation in the DNA sequence to **not** have an effect on the phenotype (physical appearance)?
19. Which word best represents this definition: *heritable, variations or changes in the genetic code*?
20. Fill in the blank. *Most of the DNA in an organism’s \_\_\_\_\_\_\_\_\_\_\_ (total DNA) is noncoding.*
21. What could cause a mutation in the DNA sequence to **not** have an effect on the phenotype (physical appearance)?
22. Which mutation category involves changes in the number or structure of chromosomes?
23. Which mutation type refers to the single base change for another? This type usually affects no more than a single amino acid.
24. What mutation type refers to **adding** an extra base into the DNA sequence, shifting the reading frame?
25. What mutation type refers to **removing** an extra base into the DNA sequence, shifting the reading frame?