**DNA/Gel Electrophoresis Test Review**

1. Name the four nitrogen base in DNA. Adenine, thymine, cytosine, guanine

2. Adenine pairs with \_\_\_\_\_\_thymine\_\_\_\_\_\_\_\_. Cytosine pairs with \_\_\_\_guanine\_\_\_\_\_\_.

3. If DNA were a ladder, the rungs contain the nitrogen \_\_\_\_\_bases\_\_\_\_\_\_\_\_\_\_, and the

 uprights are made of \_\_\_\_\_phosphate\_\_\_\_\_\_groups and the sugar\_\_\_deoxyribose\_\_\_\_\_\_\_\_\_.

4. The pairing of the \_\_\_\_\_\_\_nitrogen\_\_\_\_\_\_\_\_\_\_\_bases are very important to DNA function.

5. \_\_\_\_\_DNA Replication\_\_\_\_\_\_\_\_\_\_\_\_\_\_is the process by which a DNA molecule is copied.

6. The monomers(building blocks) of RNA/DNA are called\_\_\_\_\_\_nucleotides\_\_\_\_\_\_\_\_\_\_\_\_.

7. What **three** things make up a nucleotide? Nitrogen base, 5-C sugar, phosphate group

8. RNA does not contain the base thymine, it has \_\_\_\_\_\_uracil\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_instead.

9. \_\_\_\_\_\_\_\_Transcription\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_produces mRNA from DNA.

10. Proteins are synthesized during the process of \_\_\_Translation\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

11. Translation takes place at the \_\_\_\_\_\_\_\_ribosome\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_in the cytoplasm.

12. DNA replication takes place in the \_\_\_nucleus\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_of a cell.

13. What is made during translation? Amino acids/polypeptides/proteins

14. DNA replication is considered \_\_\_semi\_\_\_\_\_--\_\_\_\_\_conservative\_\_\_\_\_\_\_\_\_\_because it produces two molecules of DNA; half original and half new.

15. What is made during translation? Same as # 13

16**. STUDY THE STEPS OF DNA EXTRACTION FROM THE STRAWBERRY DNA LAB**.

17. \_\_\_\_\_Gel electrophoresis\_\_\_\_\_is the technique used to separate and analyze charged particles.

18. What kind of molecule will we normally analyze using gel electrophoresis?\_\_\_DNA\_\_\_\_\_\_\_\_

19. The positively charged electrode on a gel box is called the \_\_\_\_\_anode\_\_\_\_\_\_\_\_.

20. The negatively charged electrode on a gel box is called the\_\_\_\_cathode\_\_\_\_\_\_.

21. What charge will a DNA molecule have? negative

22. The positive end of a gel box is what color? red

23. The negative end of a gel box is what color? black

24. What electrolyte did we use in the electrophoresis introduction lab? NaCl

25. What kind of buffer do we use during electrophoresis labs? TAE

26. What is the name of the special gel used in electrophoresis? agarose

27. How do you clean the gel boxes when finished? Rinse with water and air dry upside down. NO detergents and NO wiping with a paper towels☹

28. **True** or False? You must always use a buffer when running DNA gel electrophoresis.

29. Agarose gel is made from \_\_\_\_seaweed\_\_\_\_\_\_\_\_.

30. In which direction will DNA run in the gel box during gel electrophoresis? Toward red (+)

31. Long or **short**? Which fragments will travels farther and faster during gel electrophoresis?

32. Look for tiny \_\_\_\_bubbles\_\_\_\_\_\_\_to show that electrolysis is working properly.

33. After running a gel, you must \_\_\_stain\_\_\_the gels to see them under a UV light.

34. What is the name of the tiny holes you put your samples when loading a gel? wells

35. Place the steps of gel electrophoresis in order:

 \_\_\_5\_\_Stain the gel and analyze the results.

 \_\_1\_\_\_Make the gel.

 \_\_2\_\_\_Set up gel apparatus.

 \_\_3\_\_\_Load DNA samples into the gel.

 \_\_4\_\_\_Hook up the electrical equipment.

36**. Be able to identify** each of the following pieces of equipment used during gel electrophoresis:

 **gel box, power supply, gel comb, gel tray, micropipet**