

Biology 12 - The Molecular Basis of Inheritance

- Define the following terms, **IN YOUR OWN WORDS, IN AS FEW WORDS AS CLARITY ALLOWS.** (4)

i. complementary base pairing	
ii. purines	
iii. pyrimidines	
iv. replication	
v. mRNA	
vi. transcription	
vii. codon	
viii. rRNA	
ix. tRNA	
x. anticodon	
xi. polysome	
xii. recombinant DNA	
xiii. mutagens	
xiv. translation	
xv. ribosome	
xvi. Genetic Code	

2. All nucleotides are made of the following three parts:

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3. In RNA, the base _____ is replaced with the base _____.

4. Mix and match the following bases with their correct partner for base pairings: (2)

	1.	purine	A	adenine
	2.	pyrimidine	B	cytosine
	3.	adenine	C	guanine
	4.	guanine	D	purine
	5.	cytosine	E	uracil
	6.	thymine	F	thymine
	7.	uracil	G	pyrimidine

5. DNA replication is called _____ because each new double helix is made of an old strand and a new strand.

6. A mutation is a change in the sequence of _____ within a DNA molecule.

7. During transcription, DNA serves as a _____ for mRNA formation.

8. DNA carries a _____; every three bases stand for one amino acid.

9. Each tRNA has an _____ at one end and a specific _____ at the other.

10. A person with PKU has a defective _____ so that phenylalanine cannot be converted to tyrosine.
11. The nucleolus is a concentration of a nucleic acid called _____.
12. The "backbone" of a strand of DNA (i.e. the poles of the DNA "ladder") is composed of _____ and _____ held together with _____ bonds.
13. The "rungs" of the DNA ladder are composed of _____ held together with _____.

14. List 3 differences in structure in RNA, compared to the structure of DNA.

1.	
2.	
3.	

15. Fill in the following table: (3)

DNA									
mRNA	G	G	U	G	U	A	A	U	U
anticodon									
amino acid									

16. Ribosomes are the site of _____. Ribosomes are composed of _____ subunits. Ribosomes are made up of _____ and _____.
17. Protein is produced during the process called _____. This process has three main parts:

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18. _____ RNA is produced having bases that are _____ to the bases in DNA. Thus, it is said that DNA serves as a _____ for mRNA production. Three bases on a length of mRNA are called a _____, and code for one _____. (2)
19. _____ RNA molecules bring _____ to the ribosome during translation. The _____ of the tRNA is complementary to the codon of the mRNA.
20. Environmental factors that cause mutations are called _____. Mutations might also cause _____ in offspring if the _____ cells of the parents are affected, or might cause _____ in the individual if the _____ cells are affected. (2)
21. Three chemical mutagens are:

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22. Three radiation mutagens are:

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23. Put phrases 1 - 6 in the correct order to describe protein synthesis: (1)
1. mRNA is produced in the nucleus
 2. ribosomes move along mRNA
 3. DNA has a code
 4. polypeptide results
 5. tRNA brings amino acids to ribosomes
 6. mRNA moves to ribosomes

ANSWER: _____