Bio 122 - Review Correction for Chapters 3 & 4

***p. 315 Review***

Multiple Choice:

#1. C #2. D #3. B #4. C #5. A #6. D #7. B #8. C #9. B

Understanding Concepts:

#13. Since [A] = [T] and [C] = [G], Watson and Crick determined that A always and only bonds with T (same with C & G).

#14. Base pairing is the principle that certain nucleotides only attach (bond) to specific other nucleotides. They follow Chagraff’s rule ([A] = [T] and [C] = [G]).

#16. DNA separates into 2 strands and then produces 2 complimentary strands following the rules of base pairing. Each new molecule has 1 original strand and 1 new strand.

#18. Introns are useless sections of RNA and get removed. Exons are the leftover useful sections that are fused together to make mRNA.

#19. Three consecutive nucleotides that code for an amino acid are called a codon.

#20. An anti-codon is a set of 3 nucleotides on tRNA designed to recognize and bond to a codon of mRNA. When the bonding takes place, the tRNA releases its amino acid into the polypeptide.

#21. CTA (DNA) 🡪 GAU (mRNA codon) 🡪 CUA (tRNA anti-codon)

#23. Gene mutations – a single nucleotide difference (such as substitution or insertion / deletion). Chromosome mutations – Whole chromosome affected (such as deletion, duplication, inversion or translocation).

#28. Photocopying is similar because an exact copy is made. Photocopying is different because the resulting molecules contain half the original DNA and half of the copy. Also, the new molecules *can* contain mistakes, which are less likely to occur during photocopying.

#29. (DNA) ACCGTCAC TCGCACGT

 (mRNA) UGGCAGUG AGCGUGCA

#30. With additional nucleotides remaining, additional amino acids would be added to the polypetptide, resulting in a different protein.

#33. A chromosomal mutation taking place in a gamete is inheritable by the next generation. It is not inheritable if it takes place in the body’s cells.