BIO 323 GENETICS AND EVOLUTION

SECTION A

1. ---------- is any of the chromosome not considered as a sex chromosome
2. Proteins are macromolecules made of smaller units called -----------
3. The information relationship between nucleotides and amino acids is defined as ----------
4. --------- is the starvation codon are ------,--------, and ----------- referred to as amber, echre and opal nonsense mutation respectively.
5. \_\_\_\_\_\_ refers to any changes in the nucleotide sequence of DNA structure of a genome that lead to permanent and heritable changes in the genetic information encoded in the DNA
6. The process of mutation is called------- and an organism showing an altered phenotype as a result of mutation is referred to as-------
7. A mutation that affects non-essential DNA or has a negligible effect on the function of a gene is called-------
8. A mutation that occurs in sex cells in which mutant gametes are produces and the mutation can be transmitted to the offspring is called\_\_\_\_\_
9. \_\_\_\_\_\_\_ is the condition that arises when both alleles in a heterozygous organism are dominant and are fully expressed in the phenotype
10. Base + sugar =
11. Base + sugar + phosphate =
12. \_\_\_\_\_\_ is when two members of alleles are not identical
13. State law of segregation: this law state that an organism’s characteristics
14. In DNA, guanine will only pair with \_\_\_\_\_ and adenine with\_\_\_\_\_\_\_\_
15. RNA exists in three forms \_\_\_\_\_,\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_
16. DNA consist of sugar called \_\_\_\_\_, while in RNA, the sugar is called \_\_\_\_
17. In RNA, thymine is replaced by \_\_\_\_\_\_\_
18. Amino acids are joined together by \_\_\_\_\_\_\_\_\_

SECTION B

Q1. Distinguish between the following pairs:

1. Dominant and recessive
2. Phenotype and genotype.
3. Diploid and haploid numbers
4. Homozygous and heterozygous
5. Meiosis and mitosis

Q2.

1. Sex chromosomes: Is a type of chromosome involved in sex determination.
2. Sex linkage
3. Autosome
4. Mutations
5. Polyploid
6. Genetic code
7. Translation
8. Transcription \

Q3. State Mendel’s first and second law of inheritance

b. what do you understand by:

1. Monohybrid crossing

Q4. Write note on the following:

1. Incomplete dominance
2. Co-dominance

2. Dihybrid crossing

3. Gene

c. Work out a dihybrid cross (up to F2) between a pea plant with round-purple seed (RRWW) dominant and wrinkle white seed (rrww). The round purple seed dominant over the wrinkle white seed.