

Bago University
Department of Botany
Second Semester Examination, September, 2019

Third Year (B.Sc.)
Botany Specialization
Answer All Questions

Bot.3108
Advanced Genetics
Time allowed: (3) Hours

I. Determine whether each statement is TRUE or FALSE.

(10 marks)

1. Cytogenetic must be defined as the study of inherited materials.
2. Certain other viruses contain linear DNA molecules.
3. Bacteria are organisms with simplest structure and function.
4. Remarkably, the two pairs A-T and G.C have same shape.
5. Two identical DNA duplexes are created from the original duplex.
6. In *E.coli* bacteria, it contains a linear genome.
7. Protein synthesis in all eukaryotic cells occur in the nucleus.
8. DNA is typically found in the cell as a double -stranded molecule.
9. Several of the nucleotides in mRNAs contain modified bases.
10. Ribosome facilitates polypeptide synthesis in various ways.

II. Write correct word to complete the following sentences.

(10 marks)

1. DNA protein complex in eukaryotic chromosome is termed as -----.
2. The internal nuclear matrix protein is very ----- and complexes.
3. The genetic code is a ----- code.
4. DNA replication is extraordinary -----.
5. Replication of eukaryotic DNA begins at ----- sites.
6. The correct initiation of DNA synthesis is its correct -----.
7. Only some 4% of total cellular RNA is -----.
8. Mature mRNA must contain all of the -----.
9. The bond between the amino acid and tRNA contains ----- energy.
10. Some tRNA can recognize more than one codon for -----.

III. Answer all questions.

(10 marks)

1. What is chromosomal DNA of Matrix attached region?
2. Give the idea of two themes focus on examination of DNA.
3. Outline the structure of the "A" form DNA.
4. List four phases of replication process.
5. Give brief explanation of amino acylsynthetases in transfer RNA (t RNA).

IV. Answer all questions.

(20 marks)

1. Describe about the "Nuclein", which extracted by Miescher in 1869.
2. Mention about the alternative form of double helix.
3. Give diagrammatic explanation of DNA replication.
4. What do you understand the "central dogma involved in RNA Synthesis?"

V. Answer any three questions.

(30 marks)

1. With the help of diagram, explain the prokaryotic chromosomes.
2. Explain about the DNA that obtained from X-ray diffraction.
3. Give the explanation of the three form of DNA replication.
4. How would discuss the discover of messenger RNA (mRNA).
5. Give detailed account on the structure of transfer RNA.