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

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

Bot.2108
Cytogenetics
Time allowed: (3) Hours

I. Determine whether each statement is TRUE or FALSE. **(10 marks)**

1. The chromosome contains many metallic ions.
2. A chromatid is one of two identical halves of a replicated chromosome.
3. Chromosomes are related with the metabolism of organism.
4. The two arms of chromosome were separated by chromonema.
5. The human chromosome number is only 23.
6. Paracentric inversions have been influential in producing new karyotypes.
7. The position of centromere is fixed in a particular chromosome.
8. Sub-metacentric chromosome is V shape at anaphase stage.
9. The nullisomic (2n-2) is particular kind of double trisomic.
10. Epigenetic alteration in gene expression result from environmental effect.

II. Write correct word to complete the following sentences. **(10 marks)**

1. The gene is the basic --------- unit of inheritance.
2. The --------- can helped identified chromosome abnormalities.
3. Each chromosome contains a -------- zone known as centromere.
4. The centromere that appear abnormally later is called ---------.
5. Nucleic acid is made up of many --------.
6. Most of the cultivated plants composed of ---------.
7. Individual or cells having --------- chromosome number are aneuploid.
8. A tetraploid individual produce --------- gametes and gametophytes.
9. Coupling and repulsion are two aspects of a single phenomenon called ---------.
10. ---------- is the basic repeating unit of chromatin.

III. Answer all questions. **(10 marks)**

1. What about the enzyme?
2. Define the chromosome.
3. Mention the dicentric chromosome.
4. Clarify the tetraploid.
5. Write chromosome constitution give rise Down's syndrome, Klinefelter's syndrome, Eward's syndrome and Patau's syndrome.

IV. Answer all questions. **(20 marks)**

1. Explain duplication with suitable diagram.
2. Discuss about the Lampbrush chromosome.
3. Write account on the polyploidy.
4. Explain three particular chromosome types of coils.

V. Answer any three questions. **(30 marks)**

1. Discuss the three types of translocation with diagrams.
2. Explain about the chromomere.
3. Give a brief account on complete linkage in *Drosophila*.
4. Describe the chromosome number 2n+ 1 type.
5. Write account on the epigenetic and human diseases.