

**Bago University**  
**Department of Botany**  
**First Semester Examination, March, 2019**

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

**Bot.2103**  
**Genetics**

**Time allowed: (3) Hours**

- I. Determine whether each statement is TRUE or FALSE. (10 marks)**
1. The two sets of genes contained in the fertilized egg.
  2. Non-allelic genes of apparently identical effect are known as duplicate genes.
  3. A fully dominant lethal allele kills only in the homozygous condition.
  4. The skin color is dependent upon the amount of a pigment melanin.
  5. Most lower plants and many lower animals are hermaphrodites.
  6. Alleles that lack dominant and recessive relationships are called codominants.
  7. The male drone honey bee develops from a fertilized egg.
  8. In man, normal males are chromosomally XX.
  9. Holandric genes are those that occur normally on X chromosome only.
  10. The qualitative traits are often susceptible to environmental modification.
- II. Write correct word to complete the following sentences. (10 marks)**
1. An individual reproduced -----, possesses two sets of genes.
  2. The division of nucleus is called -----.
  3. A fully dominant lethal allele arises by ----- from a wild type allele.
  4. "O" blood group person can receive blood from group -----.
  5. Antigens to certain specific components ----- of the blood serum.
  6. Hymenoptera, ----- are developed by parthenogenesis.
  7. In corn plants are the ears of ----- flower.
  8. In domestic chicken, the symbol ----- may be used to designate males.
  9. The male transmits its sex-linked traits to its ----- through its daughter.
  10. In the Sebrightian breeds, birds of both sexes are ----- feather.
- III. Answer all questions. (10 marks)**
1. Clarify karyokinesis and cytokinesis.
  2. What does epistasis mean? Dominance? How do the two differ?
  3. Mention gene interaction.
  4. Define intermediate alleles.
  5. Define lethal genes.
- IV. Answer all questions. (20 marks)**
1. Write comparison of mitosis and meiosis.
  2. Discuss multiple allele series of the blood group in man.
  3. Explain heterogametic males with suitable diagram.
  4. Mention crisscross inheritance.
- V. Answer any three questions. (30 marks)**
1. Define Mendel's law II and also explain with example.
  2. Discuss duplicate recessive epistasis with suitable example.
  3. Describe the multiple alleles with coat color in rabbit example.
  4. Discuss the sex-influenced dominance.
  5. Write account on the polygenic inheritance with skin color in man example.