

**C 61232**

**(Pages : 2)**

**Name.....**

**Reg. No.....**

**FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2019**

**(CUCBCSS—UG)**

**Biotechnology**

**BTY 4B 05—GENETICS**

**Time : Three Hours**

**Maximum : 80 Marks**

**Section A**

*Answer any **two** out of four questions in about 1500 words.*

*Each question carries 10 marks.*

1. Describe in brief the laws established by Mendel's experiments in plant hybridization.
2. How is the inheritance of sex-linked characters different from characters determined by autosomal genes ?
3. Write a note on chromosomal numerical and structural aberrations.
4. What is the Hardy-Weinberg equilibrium ?

**(2 × 10 = 20 marks)**

**Section B**

*Answer any **seven** out of fourteen questions in about 750 words.*

*Each question carries 5 marks.*

5. What is the difference between a genotype and phenotype ?
6. What is a karyotype ?
7. Give an example illustrating the inheritance of multiple alleles.
8. What are the main differences between euchromatin and heterochromatin ?
9. What is epistasis ?
10. How is skin colour inherited in humans ?
11. What is conjugation ?
12. What is pedigree analysis ? What is its application ?
13. What are auxotrophs ? How are they isolated ?
14. What is crossing over ?
15. What is polyteny ?

**Turn over**

16. What is a genome ? What is the estimated size of the human genome ?
17. How has molecular biology contributed to our understanding of evolution ?
18. What is the difference between incomplete dominance and co-dominance ?

(7 × 5 = 35 marks)

### Section C

Answer **all** questions in about 300 words.

Each question carries 3 marks.

19. Differentiate between qualitative and quantitative inheritance.
20. Briefly describe the organization of a chromosome.
21. What is cytoplasmic inheritance ?
22. How is sex determined in *Drosophila* ?
23. What is linkage ?

(5 × 3 = 15 marks)

### Section D

Answer **all** questions in about 200 words.

Each question carries 2 marks.

24. What is a gene ?
25. What are plasmids ?
26. What is the 'Central Dogma' of biology ?
27. What is the process of gene transfer mediated by viruses called ?
28. What are autosomes ?

(5 × 2 = 10 marks)