C 61232

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 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 x 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 ?
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 x 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 x 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 'Central Dogma' of biology ?
27. What is the process of gene transfer meditated by viruses called ?
28. what are autosomes ?

(5 x 2 = 10 marks)