C 23306 (Pages : 2) Name.....

Reg. No.....

# FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2017

(CUCBCSS—UG)

Biotechnology

BTY 4B 05—GENETICS

Time : Three Hours Maximum : 80 Marks

## Section A

*Answer any* **two** *out of four questions in about* 1,500 *words.*
*Each question carries* 10 *marks.*

1. Briefly explain Mendel's Laws of inheritance.
2. What are nucleosomes ? What is the role of nucleosomes in chromosome structure ?
3. Compare bacterial conjugation, transformation and transduction.
4. What are the factors that influence 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. Discuss how pedigree analysis was used to understand the inheritance of human genetic disorders.
6. Describe the irtheritance of blood-type in man.
7. Discuss the inheritance of shell coiling in snails.
8. Cite an example and discuss the inheritance of sex linked characters.
9. What are polytene chromosomes ? With a diagram describe polytene chromosomes in Drosophila.
10. Compare sex determination in Drosophila with that in man.
11. Write a note on the organization of the human genome.
12. What are the structural and functional differences between eu- and heterochromatin ?
13. What causes Down's syndrome ?
14. What are specialized transducing phages ?

**Turn over**

15. Cite an example to illustrate polygenic inheritance.

16. How does speciation occur during evolution ?

17. How is white eye colour inherited in Drosophila ?

18. What are plasmids ?

(7 × 5 = 35 marks)

## Section C

*Answer* **all** *questions in about* 300 *words.*
*Each question carries* 3 *marks.*

19. Distinguish between genetic and epigenetic inheritance.

20. What is a karyotype ?

21. How is replica plating done ? What is its application ?

22. What is genetic drift ?

23. What is a phylogenetic tree ?

(5 × 3 = 15 marks)

## Section D

*Answer* **all** *questions in about* 200 *words.*
*Each question carries* 2 *marks.*

24. State the principle of dominance.

25. What is a hybrid ?

26. What is crossing over ?

27. Define 'mutation'.

28. Define 'gene'.

(5 × 2 = 10 marks)