

FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2016

(CUCBCSS-UG)

Core Course – 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. Explain Mendel's law of segregation and independent assortment with suitable examples
2. Describe structure and organisation of chromosome
3. Discuss the natural gene transfer mechanisms in bacteria
4. Explain various factors that influence 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 are the characters of multiple alleles? Explain with example.
6. Explain replica plating technique and its advantage.
7. Illustrate maternal effect with example.
8. Discuss the significance of linkage and crossing over.
9. Explain the features of euchromatin and heterochromatin.
10. Discuss the genetics of blood grouping.
11. Give an account on sex linked inheritance.
12. Discuss the characteristics of quantitative inheritance and how it differ from qualitative inheritance.
13. Discuss about different kind of syndrome occur due to sex chromosomal abnormalities.
14. Explain replication of RNA viruses.
15. Explain molecular evolution with suitable examples.
16. What is auxotroph? Describe replica plating technique.
17. What is euploidy? Explain different types of euploidy.
18. What is pedigree analysis? Explain with suitable example.

(7 x 5 = 35 marks)

Turn over

Section C

Answer all questions in about 300 words.

Each question carries 3 marks.

19. Structure and organisation of **nucleosome**.
20. Give an account on different types of **plasmids**.
21. Explain **chrome theory of inheritance**.
22. What is **complementation**? Explain with example.
23. What is **karyotyping**? Explain different types of **chromosome banding**.

(5 x 3 = 15 marks)

Section D

Answer all questions in about 200 words.

Each question carries 2 marks.

24. **Epistasis**.
25. **Genetic Drift**.
26. **Natural selection**.
27. **Pleiotropism**.
28. **Sexduction**.

(5 x 2 = 10 mar