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BSCBOC 252

**Credit Based IV Semester B.Sc. Degree Examination, September 2022
(2019 – 20 and Earlier Batches)**

BOTANY

Cell Biology, Molecular Biology and Genetics

Time : 3 Hours

Max. Marks : 80

- Instructions :** 1) Answer **Part – A** and **Part – B**.
2) Answer for **full** questions from **Part – B**, choosing **one** full question from **each** Unit.
3) **All** questions in **Part – B** carry **equal** marks.
4) Draw diagrams **wherever** necessary.

PART – A

1. Answer **any ten** of the following : **(2×10=20)**
- Give any two functions of lysosomes.
 - Write four important morphological features of chromosomes.
 - Give an account on Karyotype.
 - What is cistron ?
 - What are parent and target sites with reference to transposon ?
 - Define DNA replication.
 - Define test cross.
 - Write the phenotypic ratio in recessive epistasis.
 - Define polyploidy.
 - What is Punnett Coupling.
 - Give any two examples for natural autoploids.
 - What is crossing over ?

PART – B

Unit – I

2. a) Explain the structure of Chromosomes. **4**
b) Write the structure of Mitochondria. **4**
c) Give detail account on Prophase of Meiosis. **7**

OR

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3. a) Give significances of Mitosis **3**
b) Write the structure of Nucleosome-solenoid model of chromosome. **5**
c) Explain the structure and function of plasma membrane. **7**

Unit – II

4. a) Explain Watson and Crick Model of DNA. **4**
b) Write a brief note on types of RNA. **4**
c) Give an account on Genetic Code. **7**

OR

5. a) Write a brief note on RNA primer in DNA replication. **3**
b) Give an account on transposons. **5**
c) Explain DNA is the genetic material with Griffith and Avery-Macleod experiments. **7**

Unit – III

6. a) Give an account on monohybrid cross in plants. **4**
b) Write a note on duplicate gene interaction. **4**
c) Explain sex determination in *Coccinia* and *Viscum*. **7**

OR

7. a) Explain break and exchange theory of crossing over. **3**
b) Describe sex determination in Maize. **5**
c) Explain Polygenic inheritance with example. **7**

Unit – IV

8. a) Give an account on role of Polyploidy in Plant breeding. **4**
b) Give detailed account on Physical Mutagens. **4**
c) What is ploidy ? Explain its types. **7**

OR

9. a) Write a note on role of mutation in Plant breeding. **3**
b) Explain chemical mutagens. **5**
c) Give a detailed account on chromosomal aberrations. **7**
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