

M.Sc. (Botany) (NEP Pattern) Semester-III  
**03MSCBOT02 - Paper-II : Cytology & Genetics**

P. Pages : 1

Time : Three Hours



**GUG/S/25/15953**

Max. Marks : 80

- Notes :
1. All questions are compulsory.
  2. All questions carry equal marks.
  3. Draw well labelled diagrams wherever necessary.

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|-----------|---|-----------|
| <b>1.</b> | Give a detail account on multiple allele and iso alleles.                                 | <b>16</b> |
|           | <b>OR</b>   |           |
|           | Write notes on-   |           |
|           | a) Sex determination in plants.   | <b>8</b>  |
|           | b) Pleiotropic genes.   | <b>8</b>  |
| <b>2.</b> | Describe chromosome structure and packaging of DNA.                                       | <b>16</b> |
|           | <b>OR</b>   |           |
|           | Write notes on-   |           |
|           | a) Euchromatin and Heterochromatin.   | <b>8</b>  |
|           | b) Explain Karyotype analysis and evolution.  | <b>8</b>  |
| <b>3.</b> | Write in detail on numerical changes in chromosomes and its significance in evolution.    | <b>16</b> |
|           | <b>OR</b>   |           |
|           | Write notes on-   |           |
|           | a) Effect of aneuploidy on plants.  | <b>8</b>  |
|           | b) Complex translocation heterozygotes.   | <b>8</b>  |
| <b>4.</b> | Give detail account of spontaneous and induced mutation and its role in crop improvement. | <b>16</b> |
|           | <b>OR</b>   |           |
|           | Write notes on-   |           |
|           | a) Epigenome and epigenomics.   | <b>8</b>  |
|           | b) DNA methylation.   | <b>8</b>  |
| <b>5.</b> | Write short notes on-   |           |
|           | a) Penetrance and expressivity.   | <b>4</b>  |
|           | b) C-Value paradox.   | <b>4</b>  |
|           | c) Translocation tester sets.   | <b>4</b>  |
|           | d) Lamarckism.  | <b>4</b>  |

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