

G-1/110/21

Roll No.....

M.Sc. I Semester Examination, April-2021

BOTANY

Paper II

(Genetics)

Time : 3 Hours]

[Maximum Marks : 80

Note : *All questions are compulsory. Question Paper comprises of 3 sections. **Section A** is objective type/Multiple Choice questions with no internal choice. **Section B** is short answer type with internal choice. **Section C** is long answer type with internal choice.*

SECTION 'A'

1×8=8

(Objective Type Questions)

Choose the correct answer :

- 1.** The change in number due to deletion, duplication is called :
 - (a) Chromosomal arrangement
 - (b) Chromosomal aberration
 - (c) Chromosomal determination
 - (d) All of above

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4. Discuss exploitation of hybrid vigour.

Or

Describe utility of alien addition lines.

SECTION 'C'

12×4=48

(Long Answer Type Questions)

Note : Answer the following questions in 500 words.

1. Describe the structure of chromosome and also mention packaging of DNA.

Or

Describe the structure and function of Lampbrush chromosome.

2. Explain mapping of Bacteriophage genome.

Or

Describe transduction in bacteria.

3. Explain genetic recombination and also describe the site specific recombination.

Or

Describe linkage with suitable examples.

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7. In trisomic the chromosome number will be :

(a) $2n+1+1$ (b) $2n-1-1$

(c) $2n+1$ (d) $2n-1$

8. Polyploidy is induced through :

(a) Irradiation (b) Ethylene

(c) Mutagenic chemicals (d) Colchicine

SECTION 'B'

6×4=24

(Short Answer Type Questions)

Note : Answer the following questions in 250 words.

1. Write note on B chromosome.

Or

Describe Euchromatin and heterochromatin.

2. Explain transformation in Bacteria.

Or

Differentiate between Lysis and Lysogeny.

3. Describe the role of Rec. A and Rec. B enzymes.

Or

Explain crossing over.

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2. When the duplication segment is near the centromere is called :
 - (a) Reverse duplication
 - (b) Tandem duplication
 - (c) Translocation
 - (d) Inversion
3. Salivary gland chromosome or polytene chromosome in salivary gland of :
 - (a) Mouse
 - (b) Chironomous
 - (c) Rabbit
 - (d) All the above
4. Histone proteins have large amount of :
 - (a) Lysine and argenine
 - (b) Glycine and glutomic acid
 - (c) Protein and phenylalamine
 - (d) All the above
5. Triticale has been developed from intergeneric hybridization between :
 - (a) Wheat and Aegilops
 - (b) Rice and Maize
 - (c) Wheat and Rice
 - (d) Wheat and Rye
6. Which of the following is hexaploid wheat :
 - (a) *Triticum durum*
 - (b) *Triticum monococcum*
 - (c) *Triticum aestivum*
 - (d) *Triticum turgidum*

[5]

4. Explain the methods for detecting alien chromatin production.

Or

What is alien gene transfer ? Describe the gene transfer in wheat.

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