

# SECOND SEMESTER EXAMINATION 2021-22

## M.Sc. Botany

### Paper - I

### Cytology and Genetics

Time : 3.00 Hrs.

Max. Marks : 80

Total No. of Printed Page : 03

Mini. Marks : 29

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**Note:-** Question paper is divided into three sections. Attempt question of all three section as per direction Distribution of marks is given in each section.

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#### Section 'A'

##### Very short answer question (in few words)

Q.1 Attempt any six questions from the following :

6x2=12

- (i) Define aneuploidy.
- (ii) What is cell cycle ?
- (iii) How cell plate formation takes place ?
- (iv) What is cis-trans test ?
- (v) What is gene library ?
- (vi) What are transposable elements ?
- (vii) What do you mean by inversion.
- (viii) Write main function of cyclin proteins.
- (ix) What is lethal mutation ?

(2)

- (x) Which of the two parents (male and female) is the source of inheritance of mitochondril genes.

## Section 'B'

### Short answer type question (in 200 words)

Q.1 Attempt any four questions from the following : 4x5=20

- (i) Write short notes on male sterility.
- (ii) Explain Tautomerism in brief.
- (iii) Write the breeding behaviour of duplication.
- (iv) Write note on jumping genes.
- (v) Differentiate metaphase of meiosis I and mitosis cell division.
- (vi) What do you mean by recon, codon and muton ?
- (vii) Explain opoptosis in brief.

## Section 'C'

### Long answer/Essay type question.

Q.3 Attempt any four questions from the following questions : 4x12=48

- (i) Explain how the first man made cereal Triticale evolved ?
- (ii) Describe meiosis Ist cell division in detail.
- (iii) Describe the genetics of mitochondria and chloroplast.
- (iv) What is mutation ? Give a detailed account of molicular basis of gene mutation ?

(3)

- (v) Describe the process of mapping of bacterial genome.
- (vi) What is thymine dimer ? How is it repaired in a cellular system ?
- (vii) Explain the regulation of gene expression in prokaryotes.

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