



**2019/TDC/ODD/SEM/  
BOTHCC-303T/127**

**TDC (CBCS) Odd Semester Exam., 2019**

**BOTANY**

**( 3rd Semester )**

Course No. : BOTHCC-303T

**( Genetics )**

Full Marks : 50

Pass Marks : 20

Time : 3 hours

*The figures in the margin indicate full marks  
for the questions*

**UNIT—I**

1. Answer any *two* questions of the following :

2×2=4

- (a) What do you mean by incomplete dominance? Give example.
- (b) What is multiple allele? Give examples.
- (c) Write on Mendel's law of independent assortment.



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2. (a) Write notes on the following :  $3 \times 2 = 6$

(i) Epistasis

(ii) *Cis-trans* complementation test

Or

(b) With neat diagram, describe the structure of phage  $T_4$ . Write how it enters inside the bacterial cell.  $4 + 2 = 6$

UNIT—II

3. Answer any *two* questions of the following :  $2 \times 2 = 4$

(a) What do you mean by extranuclear inheritance?

(b) Name the organelles involved in extranuclear inheritance.

(c) What is maternal effect? Give examples.

4. (a) With suitable example, discuss the mechanism of plastidial inheritance. 6

Or

(b) Discuss the process of extra-chromosomal inheritance with reference to shell-coiling in snail. 6

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( Continued )

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UNIT—III

5. Answer any *two* questions of the following :  $2 \times 2 = 4$

(a) What is the relationship between distance among genes and percentage of recombination?

(b) How is recombination frequency calculated?

(c) What do you mean by genetic interference?

6. (a) What is crossing over? Discuss the process of crossing over with neat diagram. 6

Or

(b) Write notes on the following :  $3 \times 2 = 6$

(i) Gene mapping

(ii) Sex-linked inheritance

UNIT—IV

7. Answer any *two* questions of the following :  $2 \times 2 = 4$

(a) What do you mean by mutagen? Give examples of two chemical mutagens.

(b) Differentiate between Allopolyploidy and autopolyploidy.

(c) What do you mean by point mutation?

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( Turn Over )



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8. (a) With suitable model, describe the mechanism of DNA repair. 6

Or

(b) Write notes on the following : 3×2=6

- (i) Transposons
- (ii) Inversion and translocation

UNIT—V

9. Answer any two questions of the following :

2×2=4

- (a) What are gene pool and gene frequency?
- (b) What do you mean by 'mutation effects' on gene frequency?
- (c) What are qualitative inheritance and quantitative inheritance?

10. (a) With suitable example, briefly describe Hardy-Weinberg law. Write the factors that effects the gene frequency in Hardy-Weinberg population. 4+2=6

Or

(b) Write notes on the following : 3×2=6

- (i) Genetic drift
- (ii) Speciation

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