

**2025/FYUG/ODD/SEM/
BOTDSC-202T/225**

FYUG Odd Semester Exam., 2025

BOTANY

(3rd Semester)

Course No. : BOTDSC-202T

**(Genetics, Molecular Biology and
Plant Breeding)**

Full Marks : 70

Pass Marks : 28

Time : 3 hours

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

UNIT—I

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

$2 \times 2 = 4$

(a) Define inheritance.

(b) What is co-dominance?

(c) What do you mean by polygenic inheritance?

(2)

2. Answer any one of the following questions :
- (a) What do you understand by cytoplasmic inheritance? Discuss with example.
- (b) Write notes on the following :
- (i) Molecular concept of gene
- (ii) Epistasis

UNIT—II

3. Answer any two of the following questions :
- (a) Write down the types of aneuploidy.
- (b) Define physical mutagen with example.
- (c) What do you mean by transposons?

4. Answer any one of the following questions :
- (a) Write short notes on the following :
- (i) Linkage and crossing over
- (ii) Hardy-Weinburg law

- (b) Define chromosomal aberrations. Explain the different types of chromosomal aberration.

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(3)

UNIT—III

- Answer any two of the following questions : $2 \times 2 = 4$
- (a) Define chromatin.
- (b) Write down the salient features of DNA.
- (c) Write different forms of DNA.

- Answer any one of the following questions : 10
- (a) Explain solanoid model of a nucleosome with diagram. $5 + 5 = 10$
- (b) Write notes on the following :
- (i) Mitochondrial DNA
- (ii) Euchromatin

UNIT—IV

- Answer any two of the following questions : $2 \times 2 = 4$

- (a) Define trp operon.
- (b) What do you understand by split gene?
- (c) Define central dogma.

(Turn Over)

8. Answer any *one* of the following questions :
- (a) Define transcription. Write a note on transcription in prokaryotes. 2+8=
 - (b) Write a note on splicing and processing of RNA.

UNIT—V

9. Answer any *two* of the following questions :
- (a) Define heterosis. 2×2=
 - (b) What do you understand by inbreeding depression?
 - (c) Give two examples of cross-pollinated plants.

10. Answer any *one* of the following questions :
- (a) Define hybridization. What are its advantages and limitations? 2+4+4=1
 - (b) What do you mean by quantitative inheritance? Explain quantitative inheritance with suitable example. 2+8=1

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