

**2024/FYUG/ODD/SEM/
BOTDSC-202T/078**

FYUG Odd Semester Exam., 2024

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

1. Answer any two from the following : 2×2=4

- (a) Write a note on lethal alleles.
- (b) Give a brief account of epistasis.
- (c) What is pleiotropy?

2. Write notes on the following : 5+5=10

- (a) Multiple alleles
- (b) Incomplete dominance

J25/648

(Turn Over)

(2)

OR

3. Give an explanatory note on plastid inheritance. Describe kappa particles in *Paramecium*. 5+5=10

UNIT—II

4. Answer any two from the following : 2×2=4
(a) Define interference.
(b) Write a note on position effect.
(c) Give a brief account of linkage.

5. Write notes on the following : 5+5=10
(a) Sex linkage
(b) Aneuploidy

OR

6. Describe Hardy-Weinberg principle of equilibrium. Add a note on transposons. 6+4=10

UNIT—III

7. Answer any two from the following : 2×2=4
(a) Write a note on nucleosome.
(b) Differentiate between euchromatin and heterochromatin.
(c) Briefly explain cot curves.

J25/648

(Continued)

(3)

8. Give an account of transformation principle of Griffith. Describe Hershey and Chase experiment. 5+5=10

OR

9. Write notes on the following : 5+5=10

- (a) DNA structure
(b) Chloroplast DNA

UNIT—IV

10. Answer any two from the following : 2×2=4

- (a) Briefly explain 'lac' operon.
(b) Write a note on central dogma.
(c) Point out the steps of DNA replication.

11. Write a note on split genes. Describe post-translational modifications of proteins. 3+7=10

OR

12. Describe protein synthesis in detail. 10

J25/648

(Turn Over)

(4)

UNIT—V

13. Answer any *two* from the following : $2 \times 2 = 4$

- (a) Write a note on breeding systems.
- (b) Write about plant genetic resources.
- (c) Point out the advantages and limitations of hybridization.

14. Write notes on the following : $5 + 5 = 10$

- (a) Acclimatization
- (b) Inbreeding depression

OR

15. Give an illustrated account of heterosis.
Add a note on applications of heterosis.

$7 + 3 = 10$

★ ★ ★

J25—550/648

2024/FYUG/ODD/SEM/
BOTDSC-202T/078