

6/BOT-351(Th) Syllabus-2023

2026

(May-June)

FYUP : 6th Semester Examination

BOTANY

(Molecular Biology)

(BOT-351)

(Theory)

Marks : 56

Time : 3 hours

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

Answer Question No. 1 which is compulsory and
one question from each Section.

1. Write short notes on the following : $4 \times 4 = 16$

(a) Structure of purines

(b) Wobble hypothesis

(c) Griffith's experiment

(d) Cistron

26D/1820

(Turn Over)

SECTION—I

2. Describe the clover leaf model of tRNA and discuss its properties. 7+3=10
3. Explain the experimental evidence which proves that DNA replication is semi-conservative. 10

SECTION—II

4. Explain the structure and regulation of the trp operon in *E.coli*. 4+6=10
5. (a) Define exons and introns. Discuss their importance in eukaryotic gene organization. 5
(b) Explain the process of 5' capping of mRNA and discuss its significance. 5

SECTION—III

6. What is post-translational modification of proteins? Describe the process of phosphorylation and Ubiquitination during post-translational modification of proteins. 3+7=10
7. With the help of neat labelled diagrams, describe the mechanism of protein synthesis in prokaryotes. 10

SECTION—IV

8. Write notes on the following : $5 \times 2 = 10$

- (a) Degeneracy of genetic code
- (b) Attentive splicing in mRNA processing

9. Briefly explain any *two* of the following : $5 \times 2 = 10$

- (a) B-form of DNA
- (b) Charging of tRNA
- (c) Enzymes involved in DNA replication

The figure in the margin indicates full marks for the questions.

Answer Question No. 1 which is compulsory and one question from each section.

1. Write short notes on the following : $4 \times 4 = 16$

- (a) Structure of purines
- (b) Wobble hypothesis
- (c) Griffith's experiment
- (d) Clonon