



NS – 327

V Semester B.Sc. Examination, Nov./Dec. 2016  
(CBCS) (Freshers) (2016-17 and Onwards)  
BOTANY (Paper – VI)

Molecular Biology, Genetic Engineering, Biotechnology and  
Plant Physiology

Time : 3 Hours

Max. Marks : 70

**Instructions :** 1) Answer **all** questions.

2) Draw diagrams and write examples **wherever** necessary.

PART – A

A. Explain/Define **any ten** of the following in **two** or **three** sentences. (10×2=20)

- 1) Define Osmosis. Mention its significance.
- 2) What is turgor pressure and wall pressure ?
- 3) What is Gene library ? Mention its significance.
- 4) What is meant by vein loading and unloading.
- 5) Differentiate transpiration and guttation.
- 6) What are exons and introns ?
- 7) Differentiate nucleocide and nucleotide.
- 8) Mention the types of membranes based on permeability.
- 9) What are molecular probes ? Where are they used ?
- 10) What is matric potential ? Give an example.
- 11) What is Genetic RNA ?
- 12) What is Chargaff's rule ?

NS - 327



PART - B

(4×5=20)

B. Write critical notes on **any four** of the following :

- 13) Munch - Mass flow hypothesis.
- 14) Differentiate between DNA and RNA.
- 15) Explain different stages involved in penicillin production.
- 16) Lac-Operon concept.
- 17) Role of microbes in industries.
- 18) With a neat labelled sketch explain clover leaf model of t-RNA.

PART - C

(3×10=30)

C. Give comprehensive account of **any three** of the following :

- 19) Explain mechanism of opening and closing of stomata.
- 20) Explain the role of N,P,K and Mg in plant growth and development.
- 21) With a neat labelled diagram, explain Watson Crick model of DNA.
- 22) A brief account on Bioinformatics and its uses.
- 23) Explain physical force theories of ascent of sap.