



SS – 364

V Semester B.Sc. Examination, November/December 2018

(CBCS) (2016 – 17 & Onwards) (F+R)

BOTANY (Paper – VI)

Molecular Biology, Genetic Engineering, Biotechnology and Plant Physiology

Time : 3 Hours

Max. Marks : 70

**Instructions :** 1) Answer **all** Parts.  
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 plasmid. What is its role in genetic engineering ?
- 2) What is gene regulation ?
- 3) Draw a neat labelled diagram of root hair.
- 4) Define water potential.
- 5) What is transpiration ? Mention any two types of transpiration.
- 6) Differentiate endosmosis and exosmosis.
- 7) What is water stress ?
- 8) Mention any two physical force theories of Ascent of sap.
- 9) What are terminator codons ? Name any one of them.
- 10) Draw a neat labelled diagram of Hydathode.
- 11) What are trace elements ? Give an example.
- 12) What is translocation of organic solutes ?

PART – B

B. Write critical notes on **any four** of the following. (4×5=20)

- 13) Types of cell membranes and their permeability.
- 14) With a neat labelled diagram, explain the structure of mRNA.
- 15) Role of microbes in industry.

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- 16) Brief account on Bioinformatics.
- 17) Factors influencing the rate of transpiration.
- 18) Radial conduction of water in roots.

## PART - C

C. Give a comprehensive account of **any three** of the following. (3×10=30)

- 19) Explain active and passive mechanism of absorption of water in plants.
- 20) Describe the mechanism of semiconservative replication of DNA.
- 21) What is genetic code ? Explain the properties of genetic code.
- 22) Explain the mechanism of opening and closing of stomata.
- 23) Explain :
  - a) Mass-flow hypothesis
  - b) Any one vital theory of Ascent of sap.

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