

5/BOT-300 (Th) Syllabus-2023

2 0 2 5

(Nov-Dec)

FYUP : 5th Semester Examination

MAJOR

BOTANY

(Plant Physiology)

BOT-300

Marks : 56

Time : 3 hours

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

**Answer Question No. 1 which is compulsory and
four questions, selecting one from each Section**

1. Write notes on the following : 4×4=16

- (a) Doannan equilibrium and its role in ion uptake in plant cells**
- (b) Evolution of oxygen during photo-synthesis**

(2)

- (c) Cryptochrome and its role in plants
- (d) Role of proton gradient in secondary active transport of solutes

SECTION—I

- 2. Define criteria of essentiality of mineral nutrients. Discuss the symptoms observed in plants due to deficiency of N, Mg, Mn and Mo. 2+8=10
- 3. Considering that pure water has $\psi = 0$; discuss the role of water potential in regulating the movement of water in a living cell. 10

SECTION—II

- 4. Discuss the mechanism of biological nitrogen fixation in root nodules of plants highlighting the role of nitrogenase enzyme. 10
- 5. Discuss how aerobic respiration yields 38 molecules of ATP from 1 molecule of glucose. 10

SECTION—III

- 6. Describe the following in brief : 5×2=10
 - (a) ABC model of flower development
 - (b) Concept of florigen

(3)

- 7. Discuss the physiological effects of auxins and cytokinins in plants. 5+5=10

SECTION—IV

- 8. Discuss the following : 5×2=10
 - (a) Proton transport theory of stomatal movement
 - (b) Blackman's law of limiting factors
- 9. Discuss the role of activated phytochrome in regulating flowering in photoperiodic plants. 10
