

	SL No of QP 9821
Unique Paper Code	: 2493012004
Name of the course	: B.Sc. (Hons.) Biochemistry (NEP)
Name of the Paper	: Biochemical Mechanisms and Responses in Plants
Semester	: VII
Duration	: 2 hours
Maximum Marks	: 60 marks

Instructions for Candidates

There are 6 questions.

Attempt any 4 questions. All questions carry equal marks.

Question no. 1 is compulsory.

1A. Define the followings:

- i. Apical dominance
- ii. Enhancement effect
- iii. Glucosinolates
- iv. Tonoplast
- v. Allelopathy
- vi. Denitrification

B. Indicate whether True or False and justify your answer:

- i. Phytochromes exist in two interconvertible forms, Pr and Pfr.
- ii. Nitrogenase enzyme is active in the presence of oxygen.
- iii. Blue light enhances stomatal opening.

(9,6)

2. Differentiate between the following:

- i. Symbiotic and Non-symbiotic nitrogen fixation
- ii. Amyloplast and Leucoplast
- iii. CAM and C4 photosynthesis mechanisms
- iv. Determinate and indeterminate nodules
- v. Somatic embryogenesis and Organogenesis

(15)

3A. Discuss the biological functions of the following plant hormones:

- i. Gibberellins
- ii. Ethylene
- iii. Brassinosteroids

B. Classify terpenoids. Give one example each of terpenoids used for:

- i. Perfume industry
- ii. Anti-inflammatory activity
- iii. Anticancer activity

(9, 6)

4A. Explain the Z-scheme of electron transport in photosynthesis.

B. Describe the regulation of the C₄ pathway.

C. Illustrate ATP synthesis through chemiosmotic coupling in chloroplasts.

(6, 4, 5)

5A. How is ammonia assimilated in plants?

B. Explain protoplast isolation and fusion.

C. Alternative reactions provide flexibility to plant glycolysis. Discuss in detail.

(5, 5, 5)

6. Write short note on followings:

- i. Nitrate reductase
- ii. Rubisco inhibitor
- iii. Vacuole in plant system
- iv. Phytochrome
- v. Glutamine synthetase

(15)