

**G-3/348/22**

Roll No. ....

**III Semester Examination, January 2022**

**M.Sc.**

**BIOCHEMISTRY**

Paper II

(Plant Physiology and Biochemistry)

Time : 3 Hours ]

[ Max. Marks : 80

**Note :** *All questions are compulsory. Question Paper comprises of 3 Sections. Section A is objective type/multiple choice questions with no internal choice. Section B is short answer type with internal choice. Section C is long answer type with internal choice.*

**SECTION A**

**1×8=8**

**(Objective Type/Multiple Choice Questions)**

*Choose the correct answer :*

1. The resting membrane potential is mainly determined by :
  - (a) The  $K^+$  gradient
  - (b) The  $Cl^-$  gradient
  - (c) The  $Ca^{2+}$  gradient
  - (d) The  $Na^+$  gradient

P.T.O.

2.  $\text{Na}^+$  glucose transporter is an example of :
- Symport
  - Antiport
  - Facilitated diffusion
  - ATP driven active transport
3. Reduction of NADP occurs in :
- Oxidative photophosphorylation
  - Cyclic photophosphorylation
  - Non-cyclic photophosphorylation
  - None of the above
4. The first product of  $\text{C}_4$  pathway is :
- PGA
  - DHAP
  - Oxaloacetate
  - Phosphoenolpyruvate
5. A widely used rooting hormone is :
- 2, 4-D
  - NAA
  - 2, 4, 5-T
  - Cytokinin
6. Transport of auxin is :
- Non-polar
  - Symplast
  - Apoplast
  - Polar

7. During abscission of leaves the separation layer is formed on the :
- Proximal side
  - Distal side
  - At the leaf apex
  - None of these
8. Delay in senescence is caused by :
- Ascorbic acid
  - Gibberellins
  - Auxins
  - Cytokinins

**SECTION B****6×4=24****(Short Answer Type Questions)****Note : Answer the following questions in 250 words.****Unit-I**

1. Discuss structure and role of F-type ATPase.

*Or*

Discuss molecular mechanism and regulation of K-transport.

**Unit-II**

2. Discuss architecture and functioning of photosystem I.

*Or*

Discuss  $\text{C}_3$  cycle.

**Unit-III**

3. Write a note on biosynthesis of auxins.

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$$Or$$

Describe biosynthesis and molecular mechanisms of Abscissic acid and Ethylene.

- ## Unit-IV

4. Discuss metabolism and regulation of pigment in senescence and SAG.

$$Or$$
$$12 \times 4 = 48$$

Describe formation of TE and mobilization of cereal endosperm in PCD.

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1. Describe voltage gated channels of K and Ca.

Discuss phosphorous nutrition and transport.

**2. Discuss photorespiration and its significance.**

Describe ATP synthesis in photosynthetic process.

### 3. Discuss biosynthesis and role of cytokine.