S-175 Roll No. ……..

BOT–504

Biochemistry and Plant Physiology

M. Sc. BOTANY (MSCBOT–12/13/16/17)

First Year, Examination, 2018

Time : 3 Hours **Max. Marks : 80**

Note : This paper is of **eighty (80)** marks containing **three (03)** Sections A, B and C. Learners are required to attempt the questions contained in these Sections according to the detailed instructions given therein.

Section–A

(Long Answer Type Questions)

Note : Section 'A' contains four (04) long answer type questions of nineteen (19) marks each. Learners are required to answer *two* (02) questions only.

1. What are Carbohydrates ? Describe various types of carbohydrates found in plants.
2. Describe in details the structure of cell-membranes. How they are selective permeable ?
3. Give the details of the mechanism of Light reaction of Photosynthesis.
4. What is Nitrogen Fixation ? What are the different types of Nitrogen Fixation ?

Section–B

(Short Answer Type Questions)

Note : Section 'B' contains eight (08) short answer type questions of eight (08) marks each. Learners are required to answer *four* (04) questions only.

1. What is Second Law of Thermodynamics ? What is Entropy ? Explain.
2. What are Prosthetic Groups ? Give their functions with suitable examples.
3. What are lipids ? Describe structure of any lipid you have studied giving its properties.
4. What is secondary structure of proteins ? Which forces maintain this structure ?
5. What is transpiration pull theory of water absorption ? What is experimental support for it ?
6. What is the mechanism of stomatal transpiration ?
7. How the photosynthesis was discovered ? Give brief history.
8. What is the mechanism of N-fixation into NH_3 formation ? Give the biochemical details.

Section–C

(Objective Type Questions)

Note : Section 'C' contains ten (10) objective type questions of one (01) mark each. All the questions of this Section are compulsory.

Choose the correct option :

1. Symplast comprises of .....

   (Protoplast/Cell wall and Intercellular space)

2. Ribosomes are associated with ..... .

   (Respiration/Protein sysnthesis)

3. In partially turgid cell the value of water potential (ψ) will be equal to ..... . $(\psi_s + \psi_p / \psi_s - \psi_p)$

4. Root pressure develops in ..... . (Xylem/Phloem)

5. Whiptail disease of Cauliflower is caused by the deficiency of ..... . (Mo/Fe)

Fill in the blanks :

6. Chief form of available nitrogen to most plants is ..... .

7. Important enzyme of N-Fixation is ..... .

8. Reaction centre of Pigment system II is ..... .

9. The transfer of sugars from Mesophyll cells to sieve tube elements in leaves is called ..... .

10. The inhibitory effect of O_2 on the photosynthesis rate is called as ..... effect.