

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  $\text{NH}_3$  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 synthesis)

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3. In partially turgid cell the value of water potential ( $\psi$ ) 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.

