

**8201**

**M.Sc. III<sup>rd</sup> SEMESTER EXAMINATION, 2019**

**BOTANY**

**Paper - I**

**Plant Physiology**

Time: Three Hours

Maximum Marks: 80

**PART – A (खण्ड – अ)**

[Marks: 20]

*Answer all questions (50 words each).*

*All questions carry equal marks.*

सभी प्रश्न अनिवार्य हैं। प्रत्येक प्रश्न का उत्तर 50 शब्दों से अधिक न हो।

सभी प्रश्नों के अंक समान हैं।

**PART – B (खण्ड – ब)**

[Marks: 40]

*Answer five questions (250 words each).*

*Selecting one from each unit. All questions carry equal marks.*

प्रत्येक इकाई से एक-एक प्रश्न चुनते हुए, कुल पाँच प्रश्न कीजिए।

प्रत्येक प्रश्न का उत्तर 250 शब्दों से अधिक न हो।

सभी प्रश्नों के अंक समान हैं।

**PART – C (खण्ड – स)**

[Marks: 20]

*Answer any two questions (300 words each).*

*All questions carry equal marks.*

कोई दो प्रश्न कीजिए। प्रत्येक प्रश्न का उत्तर 300 शब्दों से अधिक न हो।

सभी प्रश्नों के अंक समान हैं।

## **PART – A**

- Q.1 (i) Define quantum yield.
- (ii) Write down the names of first stable photosynthetic product of C<sub>3</sub> and C<sub>4</sub> plants.
- (iii) What is fermentation? How it differs from respiration?
- (iv) Define Respiratory Quotient. What will be the value of RQ of fats?
- (v) What is Saponification?
- (vi) Name two non-symbiotic nitrogen fixing bacteria.
- (vii) Write down the medicinal use of anthraquinones.
- (viii) Define alkaloids.
- (ix) What is phytoalexin?
- (x) How plants survive at low temperature stress?

## **PART – B**

### **UNIT –I**

- Q.2 Explain the pathway for CO<sub>2</sub> fixation in succulents and xerophytes.

**OR**

Write a brief note on photorespiration and its significance.

### **UNIT –II**

- Q.3 Differentiate between aerobic and anaerobic respiration.

**OR**

Write a short note on gluconeogenesis.

### **UNIT –III**

- Q.4 Describe  $\beta$ -oxidation pathway of fatty acid oxidation.

**OR**

Write down the mechanism of bacterial infection and initiation of root nodules in leguminous plants.

**UNIT –IV**

Q.5 Describe biological functions of alkaloids.

**OR**

Write short notes on the following:

- (a) Tannins
- (b) Saponins

**UNIT –V**

Q.6 Describe metal toxicity in plants.

**OR**

What is heat stress? How it affects the physiology of plants?

**PART – C**

Q.7 What is photophosphorylation? Describe cyclic and non-cyclic photophosphorylation.

Q.8 Describe pentose phosphate pathway of glucose breakdown.

Q.9 What is Nitrogen fixation? Explain how nitrogen is an important element for plants.

Describe genetics of nitrogen fixation.

Q.10 What is the difference between biotic and abiotic stress in plants? How plants overcome biotic stress?

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