

Parvatibai Chowgule College of Arts and Science
Autonomous

B.Sc. Semester End Examination, January, 2022.

Semester: III

Duration: 2 Hours

Subject: Botany

Max. Marks: 45

Title: Physiology of Plant

Instructions: 1. All questions are compulsory, however internal choice is available

2. Briefly answer sub question of **Q.4**

3. Figures to the right indicate maximum marks to each question/ sub question

4. Draw a **neat labeled diagram** wherever necessary.

5. All questions must be written in own words and not to directly

copied from any source.

Q. 1. Answer ANY THREE of the following: (09)

- a) Significance of water to plants.
- b) Strategies which are adopted by plants to avoid salt stress.
- c) Functions of alkaloid.
- d) Antitranspiration.

Q. 2. Answer ANY TWO of the following: (12)

- a) What is transpiration? Explain the mechanism of ascent of sap.
- b) Describe cyclic and non-cyclic electron transport chain in photosynthesis.
- c) Explain role of cytochrome and its function.

Q. 3. Answer ANY TWO of the following: (12)

- a) Comment on transport and physiological function of any two plant hormones.
- b) Describe C₄ pathway and compare it with CAM.
- c) What is seed dormancy? What are the factors responsible for seed dormancy?

Q. 4. Answer ANY ONE of the following: (12)

- a) Grape fruits when sundried is called as Raisins, when placed in water it swells and grapes fruits shrink in sugar syrup. Explain the mechanism and its significance.
- b) *Rubisco* enzyme is most abundant enzyme on the earth. During evolution, *Rubisco* enzyme produce an active site which unable to discriminate between CO₂ and O₂. justify. What will happen if instead of carbon dioxide it binds with oxygen?

OR

- a) Shalini was a research scholar at NIO. She was interested in studying physiology of flowering in different plant species. She performed various experiments by using white light, red light and far-red light after performing she observed results such as:-
 1. With white light no flowering was observed.
 2. With red and far red light there was no flowering.
 3. With far red light there was flowering.

Based on duration of photoperiod plants are classified into three types, which category of plants she took for her study and what was the mechanism and importance?
b) Explain role of phytochrome and its function.
