

Parvatibai Chowgule College of Arts and Science
Autonomous

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

Semester: III

Duration: 2 Hours

Subject: Botany

Max. Marks: 45

Title: Enzyme and their metabolic pathways (elective)

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. Active site.
- b. Arrhenius plot.
- c. Differentiate between lactic acid and alcohol fermentation.
- d. Role of coenzyme A and Metal ions.

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

- a) Write a detail note physico-chemical and biological characteristics of enzyme.
- b) Comment in detail factors affecting enzyme activity
- c) Explain in detail TCA cycle and mention its significance.

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

- a) Comment on classification and nomenclature of enzyme.
- b) Describe Michaelis-Menten equation and its significance.
- c) Explain the process of nodule formation in leguminous plants.

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

- a) Enzyme are Bio-catalyst. Justify and explain the concept of enzymes.
- b) i. The active site of the enzyme perfectly matches the shape of the substrate just as a lock perfectly matches the shape of its respective key.
ii. The interaction between an enzyme and its substrate is said to resemble the fitting of a hand into a glove. Explain both the concept and its mechanism.

OR

- a) Iskha is a research scholar at CSIR, Pune. She was studying respiration in plants. She treated one plant with cyanide and other plant was kept as control. How treated plant will respond to the given condition? Explain the mechanism.
- b) Explain in detail Enzyme action.