

Parvatibai Chowgule College of Arts and Science
Autonomous

B.Sc. Semester End Examination, February 2022

Semester: III

Subject: Biotechnology

Course Title: Basics of plant and animal sciences (**Elective**)

Duration: 2 Hours

Max. Marks: 45

Instructions: 1. All the questions are compulsory; an internal choice is available.
2. Figures to the right indicate maximum marks to the question.
3. Draw neatly labelled diagrams wherever necessary.

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

- a. Write a short note on the types of leaves of *Cycas* plant.
- b. Give three points of difference between isidia and soredia.
- c. Tabulate the difference between division Bryophyta and Pteridophyta (six points).
- d. How is *Riccia fluitans* different from all the other species of *Riccia*.

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

- a. Discuss the respiratory system of class Aves in detail, with the help of a diagram.
- b. Comment on the different ways in which Platyhelminthes adapt in order to survive in a host.
- c. Write a shot note on the water vascular system in starfish.

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

- a. In these types of reefs, there is no navigable channel between the shore and the reef and are very commonly found in East Indies. What are they known as and write a note on the same.
- b. Attachment of teeth varies throughout the vertebrates. Give an account on the different types of teeth attachment along with examples.
- c. Tabulate the difference between asconoid, synconoid and the leuconoid type of canal system.

Q.4. Answer ANY ONE of the following:

a. Shriya went on a hike in the temperate forests of Himalayas. As she walked along the hilly stretch, she noticed a green/whitish patch growing on the bark of the trees. She realized that the patch was of lichens.

“Lichens act as pollution indicators”. Justify the statement. **(6)**

b. This plant is known by many names; sometimes referred to as ‘spike moss’ or ‘small club moss’. It is a large genus comprising of about 700 species distributed all over the world. It is also known as the resurrection plant.

What is the name of the plant species and explain in detail the structure of the strobilus, microsporangium and megasporangium of this plant species, with the help of a neat labelled diagram. **(6)**

OR

x. Compare and contrast on the metamorphosis that takes place in a stink bug and a dragon-fly. **(6)**

y. Earthworms are said to be protandrous animals. What do you understand by the term “protandrous” and explain in detail the female and male reproductive system and the process of copulation and fertilization in earthworms. **(6)**
