

## **Chapter-3 Science of Plants - Botany**

### **Very Short Answer Questions**

**1. Explain how the term Botany has emerged?**

A: 'Bous' refers to cattle and 'Bouskein' to cattle feed. In course of time 'Bouskein' give rise to 'Botane' which gave rise to the term Botany.

**2. Name the books written by Parasara and mention the important aspects discussed in those books.**

A: Krishiparasaram --- deal about agriculture and about weeds.

Vrikshayurveda --- described different types of forests, external and internal characters of plants including medicinal plants.

**3. Who is popularly known as father of Botany? What was the book written by him?**

A: Theophrastus.

De Historia Plantarum.

**4. Who are Herbalists? What are the books written by them?**

A: Those who describe plants living in natural surroundings in technical terms are called herbalists. Their books are 'Herbals' with identification and description of medicinal plants.

**5. What was the contribution of Carolus Von Linnaeus for the development of plant taxonomy?**

A: 1. Popularized the Binomial Nomenclature.

2. Proposed the sexual system of classification.

**6. Why is Mendel considered as the father of Genetics?**

A: He conducted hybridization experiments on Pea plants.

He introduced the laws of inheritance and became popular as the father of Genetics.

**7. Who discovered the cell and what was the book written by him?**

A: Robert Hook.

Micrographia.

**8. What is Palaeobotany? What is its use?**

A: Palaeobotany deals with the study of fossils.

It helps us in understanding the course of evolution in plants.

**9. Name the branches of botany which deal with the chlorophyllous autotrophic thallophytes and non-chlorophyllous heterotrophic thallophytes?**

A: Chlorophyllous autotrophic thallophytes –Phycology.

Non-chlorophyllous heterotrophic thallophytes --- Mycology.

**10. What are the groups of plants that live as symbionts in Lichens? Name the study of lichens?**

A: Algal members and Fungal members.

Lichenology.

**11. Which group of plants is called vascular cryptogams? Name the branch of Botany which deals with them?**

A: Pteridophytes.

Pteridology.

**12. Which group of plants is called amphibians of plant kingdom? Name the branch of Botany which deals with them?**

A: Bryophytes.

Bryology.

**Short Answer Questions:**

**1. Explain in brief the scope of Botany in relation to agriculture, horticulture and medicine?**

**A:** With increasing need for food products new techniques in increasing the agriculture yields are being developed. Botany, the science of plants can solve this problem and help in increasing the crop yields for the growing population. In Agriculture it is possible through experiments in hybridization and genetic engineering to develop new hybrid varieties for various needs. The techniques of plant breeding are applied here for the benefit of the farmer. Hybrid varieties can be developed in plants like rice, wheat, maize, sugarcane etc.

Horticultural crops like fruit yielding plants, sugarcane, and vegetable yielding plants are experimented upon to get highest yield and resist pathogens and dry environments.

Knowledge of Plant physiology, for example the role of mineral nutrients is useful in rational usage of chemical fertilizers and control of mineral deficiencies to improve agricultural productivity. Similarly the knowledge of plant hormones in plant growth and development is highly significant to improve agriculture and horticulture through herbicidal control of weeds, breaking the seed dormancy, enhancing the shelf life period of vegetables, artificial ripening of fruits like bananas, water melons etc. Knowledge of Plant pathology is used in forecasting, preventing and controlling the plant diseases.

Plant tissue culture is being used for micro propagation of medicinal plants and improving the extraction of chemicals from the tissues.

**2. Explain the scope of Botany taking plant physiology as example?**

**A:** Plant physiology is the science of Botany studying different biophysical and metabolic activities of plant like mineral nutrition, absorption, growth and development.

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**3. What are the different branches of Botany that deal with morphology of plants? Give their salient features?**

**A:** Morphology deals with the study of different organs of a plant. It is a fundamental requisite for classification of plants. It can be divided into two parts.

**a) External Morphology** is the study of external characters of plant organs like root, stem, leaf, flower, fruit and seed etc.

**b) Internal Morphology** is the study of internal structure of different plant organs. It has two branches.

**i) Histology** is the study of different tissues present in the plant body.

**ii) Anatomy** deals with the study of gross internal details of plant organs like root, stem, leaf, flower etc.