

Chapter 1. Introducing Biology

Exercise 1

Solution A.

- (a) (iv) fossils
- (b) (iv) biotechnology

Solution B.1.

- (a) Biotechnology
- (b) Horticulture
- (c) Palaeontology
- (d) Immunology
- (e) Ichthyology

Solution B.2.

- (a) limbs, joints
- (b) Genome
- (c) silkworms
- (d) origin, descent
- (e) parasites
- (f) Jeevaj (viviparous)
- (g) Hippocrates

Solution B.3.

Column A	Column B
Ichthyology	Fishes
Ornithology	Birds
Ecology	Environment
Virology	Viruses
Herpetology	Snakes
Palaeontology	Fossils
Cytology	Cells
Pathology	Diseases

Solution B.4.

1. Biotechnology
2. Bioengineering

Solution B.5.

1. Insects – Entomology
2. Birds – Ornithology
3. Fungi – Mycology
4. Heredity – Genetics

Solution B.6.

1. Biotechnologist
2. Teacher
3. Bacteriologist
4. Druggist
5. Dentist
6. Entomologist

Solution C.1.

Biology is the study of living beings, all plants and animals including humans. Biology had flourished greatly in ancient India during 2500 B.C. to 650 B.C. The roots of biology can be traced back to pre-historic periods, when primitive man lived in jungles and caves. Biology has slowly grown through the ages, but developed very fast in the 20th century and is showing signs of even faster growth in the 21st century.

Solution C.2.

The knowledge of biology has greatly helped us in the field of human health. It helps us to understand the cause of many diseases. We are able to identify various micro-organisms that cause diseases in man. We can study their mode of living and the different ways in which they spread diseases. The understanding of disease-causing microorganisms has led to the development of new drugs, both natural and synthetic drugs that can kill these organisms.

Solution C.3.

A farmer, although has never studied biology, knows by his experience how to increase his produce. He knows how to plough and plant crops and select good quality seeds for sowing. He is also familiar with various methods of irrigation. He knows the technique of cross-breeding and removing weak and unwanted plants and cultivating improved varieties at the right time.

A housewife, by using her experience knows which fruit or vegetable to grow and for how much time. She also knows the nutritional values of various foodstuffs. A housewife adopts various principles of maintaining hygiene at home. She knows to tame some useful animals like cow, goat and dog for her maximum benefit.

Solution C.4.

(a) Zoology is the study of animals, whereas Entomology is the study of insects.

(b) Genetics is the science of transmission of body characteristics from parents to offspring, whereas Embryology is the study of formation and development of embryos of

plants and animals.

(c) Botany is the study of plants, whereas Mycology is the study of fungi.

(d) Space Biology is the study of survival problems of living things in outer space, whereas Exobiology is the study of life elsewhere in the universe.

(e) Biotechnology is the use of living cells or micro-organisms in industry and technology, whereas Bioinformatics is the management and analysis of biological information stored in databases.

Solution D.1.

Yes, Biology can help in further increasing the yield of food. New varieties of plants and new breeds of cattle, poultry, etc. are being developed with the knowledge of biology. The science has also increased our knowledge of diseases of plants and animals, and how to cure them. All these efforts are helping us to produce more food in fields, dairies and poultry farms.