WELCOME TO

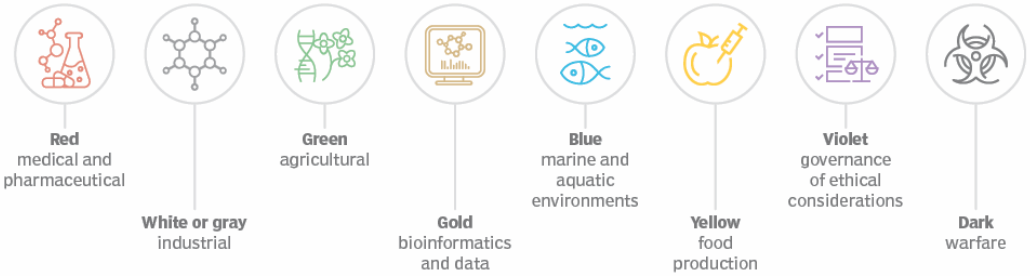
Biochemistry | Chapter-11

Chapter-11

Introduction to Biotechnology

- Biotechnology is multidisciplinary field which has major impact on our lives.
- The technology is known since years which involves working with cells or cell-derived molecules for various applications.
- It has wide range of uses and is termed “technology of hope” which impact human health, well being of other life forms and our environment.
- Biotechnology is the use of living organisms or their products to create useful products, processes, or services. It involves the manipulation of biological materials, including cells, DNA, and proteins, to develop new medicines, foods, and other products. Biotechnology encompasses a wide range of fields, including genetic engineering, molecular biology, biochemistry, microbiology, and cell biology.
- The applications of biotechnology are vast and have the potential to benefit many industries and areas of life. In medicine, biotechnology has revolutionized the development of new drugs and therapies, including vaccines, gene therapies, and personalized medicine. In agriculture, biotechnology has improved crop yields, created drought-resistant crops, and enhanced livestock production.
- Biotechnology also plays a critical role in environmental conservation, with bioremediation technologies using microorganisms to clean up pollutants and biodegradable plastics and biofuels reducing dependence on fossil fuels.

Type of Biotechnology:



DNA technology:

- DNA technology is the use of various methods to manipulate, analyze, and modify DNA (deoxyribonucleic acid), which is the genetic material that carries the instructions for the development and function of all living organisms.
- DNA technology has revolutionized many fields of biology, including genetic engineering, molecular biology, and biotechnology.
- One of the most common uses of DNA technology is genetic engineering, which involves the manipulation of an organism's DNA to add, delete, or modify specific genes.
- This technology has allowed scientists to create genetically modified organisms (GMOs) with desired traits, such as resistance to pests, increased yield, or improved nutritional content.

Examples of DNA technologies:

- DNA cloning
- Polymerase chain reaction (PCR)
- Gel electrophoresis
- DNA sequencing