

**Objective**

- Which of the following are being used as bio - pesticides?  
 (A) Viruses       (B) Bacteria       (C) Algae       (D) Fungi
- Pasteurization is a technique developed by:  
 (A) Chamberlandt       (B) Louis Pasteur       (C) Robert Koch       (D) Edward Jenner
- Cloning is a technique of achieving:  
 (A) Transgenic aims       (B) Therapeutic aims       (C) Hygienic aims       (D) Eugenic aims
- All members of a clone are genetically identical except when a:  
 (A) Disease occurs       (B) Hazard occurs       (C) None of these       (D) Mutation occurs
- A large regional community primarily determined by climate is called as:  
 (A) Population       (B) Community  
 (C) Biosphere       (D) Biome
- The muscles of stomach is of which type:  
 (A) Cardiac       (B) Skeletal       (C) Smooth       (D) All of these
- Which of the following is not an attribute of population?  
 (A) Gene frequency       (B) Gene flow       (C) Population density       (D) Gene structure
- Arrangement of unequal dichotomies in one plane is termed as:  
 (A) Community       (B) Population       (C) Biome       (D) Biosphere
- A group of living organisms of the same species located in the same place at the same time is:  
 (A) Community       (B) Population       (C) Biome       (D) Biosphere
- A group of similar cells that perform similar function is:  
 (A) Organelles       (B) Tissue       (C) Tissue       (D) Organ
- The lowest percentage of bio-elements in man among the following is of:  
 (A) Iron       (B) Manganese       (C) Sulphur       (D) Chlorine
- The percentage of potassium in the human body is:  
 (A) 0.05%       (B) 0.25%       (C) 0.15%       (D) 0.35%
- One of the following is a micromolecule:  
 (A) Cellulose       (B) Glucose       (C) Protein       (D) Starch
- The unit of life is called:  
 (A) Organelle       (B) Tissue       (C) Cell       (D) Organ
- Which one of the following is employed in treatment of cancer:  
 (A) Chemotherapy and Antibodies       (B) All of these  
 (C) Radiotherapy and chemotherapy       (D) Antibiotics and vaccination
- The tentative explanation of observation:

- (A) Deduction      (B) Theory      **(C) Hypothesis**      (D) Law
17. The reasoning that moves from general to specific is:  
(A) Inductive      (B) Theoretical      (C) Scientific      **(D) Deductive**
18. Transgenic plants can be propagated by.  
(A) Tissue culture technique      (B) Genetic engineering  
**(C) Cloning**      (D) Gene manipulation
19. Population of different species living in the same Habitat form a:  
(A) Ecosystem      **(B) Community**      (C) Biosphere      (D) Biome
20. Which of the following is not a viral disease?  
(A) Mumps      (B) Small pox      **(C) Tetanus**      (D) Cowpox
21. Which one of the following is a correct sequence in biological methods?  
(A) Law - Theory - Deduction - Observation      (B) Observation - Hypothesis - Law - Theory  
**(C) Observation - Hypothesis - deduction - Testing of deduction**      (D) Hypothesis - Observation - Deduction - Testing of deduction
22. The study of distribution of animals in nature is called:  
(A) Wild life      (B) Geography      (C) Biodiversity      **(D) Zoogeography**
23. Study of tissue is called:  
(A) Anatomy      **(B) Histology**      (C) Morphology      (D) Microbiology
24. The branch of Biology which deals with the study of environment relations of organisms is called:  
**(A) Ecology**      (B) Evolution      (C) Zoogeography      (D) Morphology
25. The study of parasite is called:  
(A) Microbiology      **(B) Parasitology**      (C) Histology      (D) Paleontology
26. Study of social behavior of human is called  
(A) Psychology      (B) Paleontology      **(C) Social biology**      (D) Anatomy
27. Internal morphology is also called:  
(A) Paleontology      (B) Histology      (C) Physiology      **(D) Anatomy**
28. The branch of biology which deals with study of ancestral history is:  
(A) Zoogeography      (B) Evolution      **(C) Paleontology**      (D) Genetics
29. The study of bacteria, viruses, protozoa and microscopic algae and fungi come under:  
(A) Virology      **(B) Microbiology**      (C) Bacteriology      (D) Molecular biology
30. The study of life in seas and oceans comes under the heading of:  
(A) Freshwater biology      (B) Sea biology  
**(C) Marine biology**      (D) Ocean biology
31. Biology is short of laws because of:  
(A) Large population of human      (B) Less falsification  
**(C) Exclusive nature of life**      (D) Less tentation
32. If a theory survives and continues to be supported by experimental evidence becomes a:  
(A) Universal formula      (B) Deduction      **(C) Scientific law**      (D) Hypothesis

33. The reasoning that moves from general to specific is:

- (A) Theoretical      (B) Scientific      (C) Inductive      (D) Deductive

34. In deductive reasoning we move from:

- (A) Specific to specific      (B) Specific to general  
(C) General to specific      (D) General to general

### Fill in the blanks

Q1: ..... is the study of organisms in relation to their environment.

Q2: The study of organisms living in fresh water bodies like rivers, lakes etc is called .....

Q3: ..... is the branch of biology which deals with the study of social behaviour and communal life of human beings.

Q4: A hypothesis is a result of deductive reasoning or it can be the consequence of ..... reasoning.

Q5: In the ..... body only six bio-elements accounts for 99% of the total mass.

Q6: All living things and nonliving things are formed of simple units called .....

Q7: Various organs in plants and various organ systems in animals are assembled together to form an .....

Q8: A ..... is a group of organisms of the same species located in the same place at the same time.

Q9: A ..... is based upon observations.

### Answers

- |                           |                       |                   |
|---------------------------|-----------------------|-------------------|
| 1. Environmental biology  | 2. Freshwater biology | 3. Social biology |
| 4. Inductive              | 5. Human              | 6. Atoms          |
| 7. Individual or organism | 8. Population         | 9. Hypothesis     |

### Chapter : 01

### Introduction to Biology

### Subjective

Q1: **What do you know about hypothesis?**

Ans: An observer organizes observation into data form and gives a statement as per experience and background knowledge of the event called hypothesis.

Q2: **Define clone.**

Ans: A clone is defined as a cell or individual and all its asexually produced offspring. All members of a clone are genetically identical except when a mutation occurs.

Q3: **What is deduction?**

Ans: It is reasoning from general to the specific. It infers a specific conclusion. It often takes from of an "if then". It is frequently used to frame the testable hypothesis.

Q4: **What is the other name of seawater?**

Ans: It is marine water.

Q5: **Name the heavy metals which are released from the automobiles and the Tanneries.**

Ans: These are lead and chromium.

Q6: **What is the gene therapy?**

Ans: Gene therapy is the treatment of the defective gene by introducing normal and healthy gene into the body through bone marrow cells.

Q7: **Name a fatal viral disease of human liver?**

Ans: Its name is hepatitis.

Q8: **What are antibiotics?**

Ans: The antibiotics are the organic compounds extracted from the organisms and used for the treatment of bacterial diseases.

Q9: **Name the last period of the mesozoic era of the earth's history?**

Ans: Its name is cretaceous period.

Q10: **Define population.**

Ans: Population is a group of individuals of one species that live in a particular geographic area at the same time.

**Examples:** Are the number of rats in a field of rice, the number of students in a classroom.

Q11: **What is a theory?**

Ans: A tested hypothesis is called a theory.

Q12: **Write down the full name of disease AIDS and its causative agent**

Ans: It is Acquired Immuno Deficiency Syndrome. Its causative agent is the Human Immuno Deficiency Virus (HIV).

Q13: **What does the Latin word vacca mean?**

Ans: It means cow.



Q14: **Name all the sixteen bio-elements.**

Ans: Six are major elements these are carbon, hydrogen, oxygen, nitrogen, calcium, sulphur, phosphorus, potassium, chlorine, sodium, magnesium, iron, copper, manganese, zinc and iodine.

Q15: **What is the amount of potassium, chlorine and magnesium in the body of man?**

Ans: Their amount is 0.35%, 0.15% and 0.05% of the total mass of the body of the man.

Q16: **What is tissue culture technique?**

Ans: A technique for manipulating fragments of animal or plant tissue or separated cells alive after their removal from the organism. The tissue fragments are kept usually within some sort of glass vessel in a medium of the right properties.

Q17: **Explain geological time scale.**

Ans: It is a system of measuring the history of the earth by studying the rocks of the earth's crust.

Q18: **What is the percentage of insects of the total known species of organism?**

Ans: It is 53.1%.

Q19: **What are the literal meanings of the word biology?**

Ans: The literal meanings of the word biology are the study of life.

Q20: **What is the function of the glandular tissue?**

Ans: The glandular tissue is specialized for secreting some thing useful for the body. e.g., gastric glands secrete gastric juice.

Q21: **Write a note on cloning.**

Ans: **Cloning:**

Is a technology for achieving eugenic aims. A clone is defined as a cell or individual and all its asexually produced offspring. All members of a clone are genetically identical except when a mutation occurs.

Generally no normal animal reproduced naturally by cloning. Several insects and many plants do, in some circumstance whereas few do so regularly.

In 1997 scientists in Scotland succeeded in cloning a sheep. In this procedure the nucleus from a fertilize egg is removed and a nucleus from a cell of a fully developed individual is inserted in its place. The altered Zygotes is then implemented in a suitable womb where it completes its development. The new individual formed in this way is a genetically identical clone of the individual whose nucleus was used. Thus cloning could make multiple copies of a desired genotype.

**Types of Cloning:**

There are three types of cloning:

- Gene Cloning.
- Cell Cloning / Tissue Culture.
- Organism Cloning.

**Gene Cloning:**

- It is manipulation of genes. In this process, desired genes or pieces of DNA are introduced into a host by means of a carrier system. The foreign DNA becomes permanent feature of the host. It is replicated and passed on to daughter cells along with host DNA. Thus a number of clones of desired genes are formed. The foreign DNA could come from another organism or might be an artificially synthesized gene.

**Cell Cloning / Tissue Culture:**

- Multiplication or asexual production of a line of cells genetically identical to the original is called cell cloning or tissue culture. It is now common on plants however not yet possible in animals Bacteria and yeast naturally exercise this technique. In plants, cells from leaves, roots or other tissues are isolated and cultured in special medium. A small tumor like mass of cells called callus is formed. All cells of callus are genetically identical. When supplied with growth hormones, callus may develop into small plant-lets. The plant-lets may produce mature plants when planted in soil.

**Organism Cloning:**

- Organisms with desired characters may be produced in large numbers by asexual process without the involvement of meiosis and fertilization. Such production of organisms is called organism cloning.

**Embryo Twining:**

Another type of cloning involves the division of a single egg or early embryo into one or more separate embryos. This is the same process the normally creates identical twins. Offspring from this type of cloning are genetically identical but carry chromosomes from each of the two parents. This type of cloning has already been used to produce

genetically identical cattle and other farm animals. Man is likely to develop cloning - techniques for production of valuable animals of known pedigree such as horses etc.

### **Human Cloning:**

At some places scientists are making attempt to clone human embryo which they believe can serve as transplant donor. There is a lot of controversy in public as to whether human cloning should be attempted or not.

#### **Q22: Define Vaccination.**

Ans: Vaccination is the injection of vaccine to make the people immune from the intending degree of their being exposed to the virus or bacteria at the time of epidemics or in some diseases the individuals are vaccinated in their early life to make them immune to those diseases.

#### **Q23: How does law differ from theory?**

Ans: A theory is made from hypothesis which has been tested by many experiments. A good theory is predictive and has explanatory power. One of the most important features of a good theory is that it may suggest new and different hypothesis. A theory of this kind is called productive.

If a theory survives skeptical approach of other scientists and continues to be supported by experimental evidences, it becomes a scientific law. A scientific law is a uniform or constant fact of nature.

#### **Q24: What do you mean by hypothesis?**

Ans: An observer organizes observations into data form and gives a statement as per experience and background knowledge of the event. This statement is the hypothesis. Or hypothesis is the statement made by a scientist on the basis of observation or available information.

#### **Q25: How many percent of the total known organisms of the are the vascular plants in the world?**

Ans: They are 17.6 percent of the total known organisms of the world.

#### **Q26: Who introduced the technique of vaccination and when?**

Ans: Edward Jenner introduced this technique in 1795.

#### **Q27: Enumerate the various kinds of interaction between the organisms of a community.**

Ans: These are the predation, parasitism, commensalism, mutualism and competition.

#### **Q28: Are the protists unicellular or multicellular organism?**

Ans: The majority of the protists are unicellular organisms.

#### **Q29: What is community?**

Ans: Community is an ecological term for any naturally occurring group of different organism in habiting a common environment interacting with each other, especially thorough food relationships, and relatively independent of the other groups. Communities may be of varying sizes and larger ones may contain smaller ones.

#### **Q30: Name some most important and abundant organic compounds found in the bodies of the living brings?**

Ans: These are glucose, amino acids, fatty acids, glycerol and nucleotides.

#### **Q31: What is pedigree?**

Ans: Pedigree means the race of an organism.

Q32: **What does the word "Pathogenic" mean?**

Ans: Pathogenic means "disease cause".

Q33: **Define theology.**

Ans: The study of religion is known as theology.

Q34: **Name the bio-elements which occur only in traces in the human body?**

Ans: These are copper, manganese, zinc and iodine.

## Chapter : 01

## Introduction to Biology



### Imp.Long Questions

Q1: Describe the biological organization at organelles and cell level. (V.imp)

Q2: Describe briefly the biological organization up to organism level.

Q3: Describe biological organization at population and community level.

Q4: Discuss briefly phyletic lineage.

Q5: Explain various steps in biological method? (V.imp)

Q6: Explain any three steps in biological method.

Q7: Explain the biological method for solving a biological problem / problems. (V.imp)

Q8: What is hypothesis? Give two ways of its formulation.

Q9: Write a note on biological method. (V.imp)

Q10: Give advancement OR importance of biology in production of food? (V.imp)

Q11: Discuss biology and the service of mankind in field of disease control.

Q12: Discuss role of biology in the welfare of mankind.

Q13: How biology has been helping mankind in the area of health and control? (V.imp)

Q14: Write a detail note on cloning. OR write a detailed account of cloning. (V.imp)

Q15: Describe the role of drug treatment and gene therapy in disease control.

Q16: How drug treatment and gene therapy help to cure disease?

Q17: What is cloning? Explain procedure of cloning? Discuss its methods and application.

Q18: Write a note on cloning. Explain procedure of cloning. (v.imp)

Q19: Write a note on protection and conservation of Environment. (v.imp)

Q20: Describe the protection and conservation of Environment.