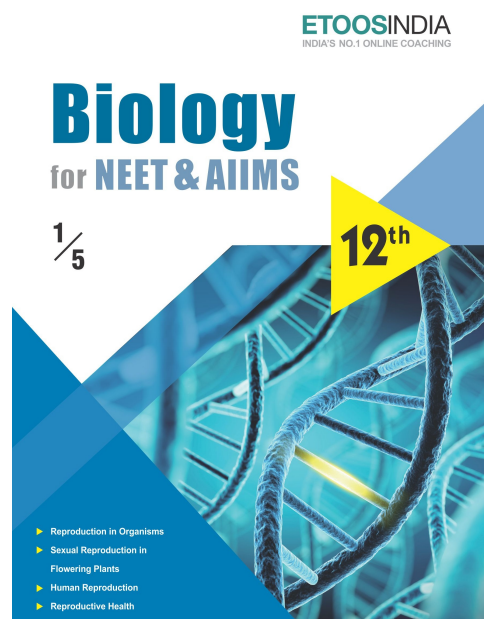
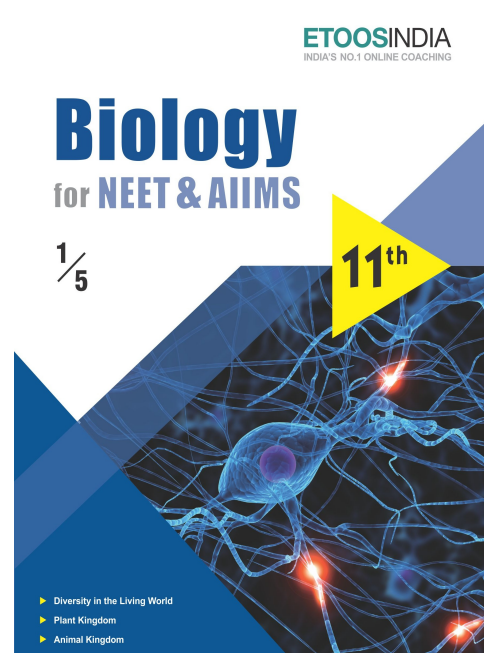
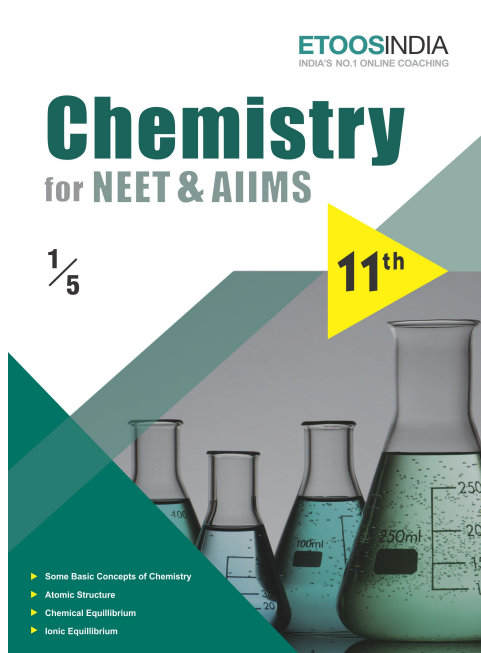
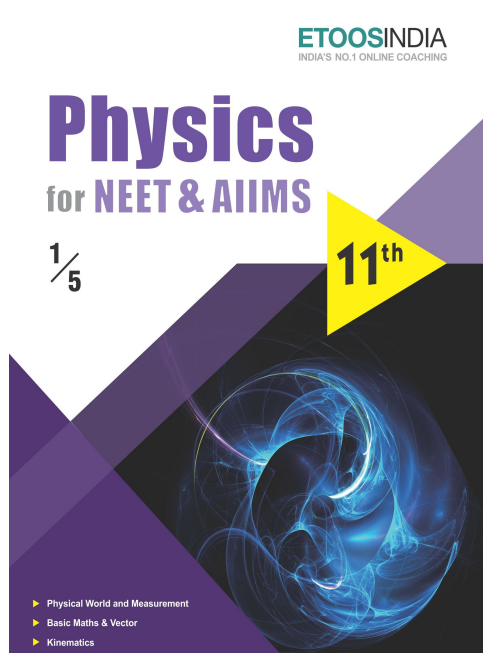


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DIVERSITY IN THE LIVING WORLD

"Man perfected by society is the best of all animals he is the most terrible of all when he lives without law, and without justice".

“ARISTOTLE (384-322 BC)”

INTRODUCTION

The living world around us exhibits a vast range of life forms which make this planet a wonderful and amazing place to reside. The variety of living organism flourishing on earth is infinite. Similarly variety of relationships are known to occur at micro level, i.e. cellular level too. Such molecular interactions occur inside, around and among the cells, which reveal astonishing facts about life. The Second approach is philosophical one, which mainly focuses on purpose of life to living organisms. Biological classification is the scientific procedure to classify the organisms into different groups on the basis of their similarities and dissimilarities also placing the groups in a hierarchy of categories.

Life is a characteristic quality that differentiate an inanimate (non-living) object from the animate (living) forms. It is a unique, complex organisation of molecules that expresses itself through chemical reactions which lead to growth, development, responsiveness, adaptation and reproduction. The objects exhibiting growth, development, responsiveness and other characteristics of life are designated as **living beings**.

Diversity in the Living World

Science :

The word science cover from the Latin word '*Scientia*' which means knowledge.

So the definition of science is : Knowledge attained through practice or study.

'OR'

Knowledge or a system of knowledge covering general truth by actual observation, found correct on verification.

Biology :

It is a fusion or composition of 2 Greek words bios and logos.

Bios = Life

Logos = Study

Thus, biology is the science of life or living matter in all its forms and phenomenon especially with reference to origin, growth, reproduction, structure & behaviour.

'OR'

It is the science of life forms and living process.

The first major biological observation was made by ancient Greek naturalist named as '**Aristotle**' (384 - 322 B.C.).

Aristotle was awarded by the title as 'Father of Biology'. French biologist, Jean - Baptiste Pierre Antoine de Monet de Lamarck (1744 – 1829) & Gottfried Peinhold Trevirances coined the term biology.

Biology is then further divided into two parts :-

- (1) Botany (2) Zoology

Botany :

The science or study of plants is called Botany.

The term 'Botany' come from the Ancient Greek word botane which means pasture or fadder. Although, technically botany is called Phytology (Phyto means plants) & logy (study).

Theophrastus (320 – 287 B.C.) is known as Father of Botany.

Zoology :

The science or study of animals is called Zoology. The term 'Zoology' came from the ancient Greek word zoion which means animal and logy means study. The father of zoology is Aristotle.

Microbiology :

It is the branch of biology which deals with different aspects of micro-organism. Leuwenhoek is called Father of Microbiology.

TAXONOMY

All living organisms are arranged into various groups based on their features according to the principle of identification, nomenclature and classification. This branch of study is called as Taxonomy.

Taxis = arrangement, nomos = law → Taxonomy is the study of principles and procedures of classification.

This word was proposed by **A.P. de. Candolle** in his book "**Theories elementaire de la botanique**" (Theory of elementary botany)

Taxonomy includes study of following 4 points

- (1) **Identification** - Identification of living organisms
- (2) **Nomenclature** - Nomenclature of living organisms
- (3) **Classification** - Classification of living organisms in groups
- (4) **Affinities** - Study of inter relationship between living organisms

KINGDOM PROTISTA

Protista are unicellular eukaryotes. They do not form tissues. Characteristics of Protista:

1. They are mostly aquatic organisms.
2. Their cell structure is eukaryotic type that have membrane bound organelle. They have 80 s cytoplasmic ribosomes and they may possess cellulosic cell wall.
3. Their movement is by flagella or cilia or pseudopodia where ciliary mode is fastest.
4. Reproduction in protista occurs by both sexual and asexual means.
5. They bear two types of life cycle:
 - a. Showing zygotic meiosis
 - b. Showing gametic meiosis
6. They are parasitic decomposers and also photosynthetic.

Living organisms included in Protista are as follow Dinoflagellates, Diatoms, Euglenoids, Slime molds, Protozoans
All the organism included in Protista are unicellular (acellular) eukaryotes.

NUTRITION:

Mode of nutrition in protist is of different types

(1) Holophytic or Photosynthetic :-

They synthesize their own food through photosynthesis.

(2) Holozoic :-

Some protist have holozoic mode of nutrition, which is similar to animals i.e. food is first ingested and then digested.

(3) Absorptive :-

Some protists obtain their food from dead organic substances. These protists secrete some extracellular enzymes. These enzymes convert the complex organic substances into simpler substances. Now these simple substance can be easily absorbed through the body surface.

(4) Mixotrophic :-

Some Protists have both holophytic and saprophytic type of nutrition.

REPRODUCTION:

Protists reproduce Asexually and Sexually

1. Asexual Reproduction :-

This is the most common method of reproduction in protists. Asexual reproduction takes place in favourable condition.

It is of following types

- (a) **Binary fission :-** Two daughter cells are formed by the division of one mother cell. After this each daughter cell grows to form a normal organism.
- (b) **Spore formation :-** Some protists have special structure known as sporangia. Spores are formed in this sporangia. The sporangia bursts after sometime and all the spores become free. These spores form a new cell after germination.

2. Sexual Reproduction :

Sexual reproduction was first of all seen in protists. In sexual reproduction two haploid gametes fuse to form a diploid zygote. This process is known as **syngamy**.

Syngamy is of three types

- (a) **Isogamy :-** It is the easiest way of sexual reproduction. In isogamy the fusing gametes are morphologically (i.e. shape, size, structure) similar but physiologically (i.e. functionally or genetically) they may be similar or dissimilar. when fusing gametes are physiologically dissimilar, process is called **physiological anisogamy**.

- (b) **Anisogamy** :- The fusing gametes are morphologically dissimilar (smaller - larger, motile - immotile) but physiologically they may be similar or dissimilar.
- (c) **Oogamy** :- It is the developed form of anisogamy. Male gamete is small and motile while female gamete is large and non motile. This female gamete is known as egg. In it the formation of male & female gametes take place in **sex organs**.

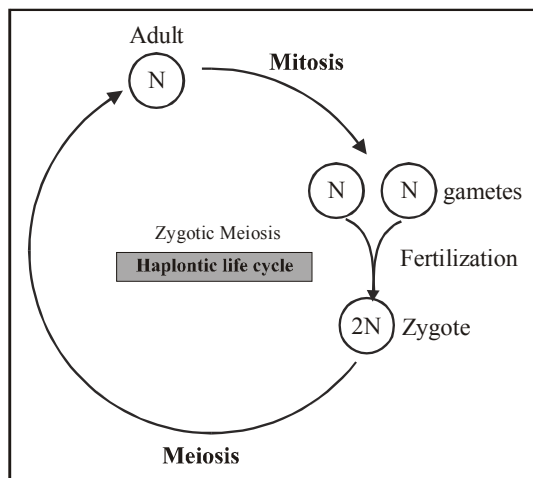
LIFECYCLE OF PROTISTA

(1) Life cycle showing zygotic meiosis :-

When Protist is haploid and meiosis occurs in zygote then it is known as **zygotic meiosis**.

In this type of life cycle during sexual reproduction gametes are formed by mitosis. These gametes are haploid. These gametes fuse to form a diploid zygote. After that meiosis takes place in zygote, as a result haploid cells are formed again.

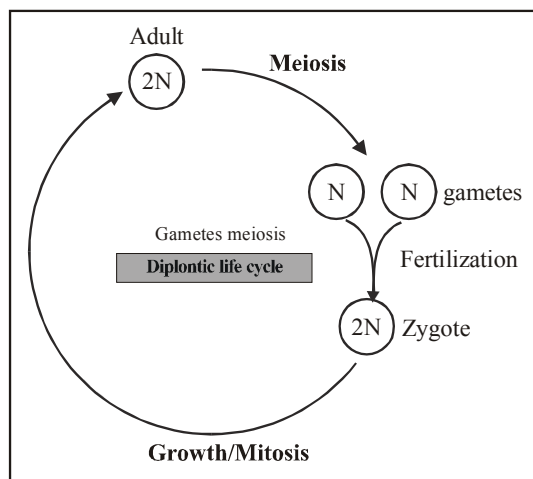
Note : In this type of life cycle the zygotic phase is only diploid and remaining all the phases are haploid so this type of life cycle is known as **haplontic life cycle**.



(2) Life cycle showing gametic meiosis :-

When Protist is diploid and meiosis takes place during gamete formation, then it is called **gametic meiosis**.

In this type of life cycle during sexual reproduction, meiosis takes place in diploid cell, due to which haploid gametes are formed. Now haploid gametes fuse to form diploid zygote. And after that mitosis takes place in zygote, due to which diploid cells are formed again.



- Ernst Mayer has been called as “The Darwin of 20th century” He worked on Taxonomy, Zoogeography, Evolution, Systematics and History & Philosophy of biology. He gave the biological concept of species.
- The number of species that are known and described ranges between 1.7 - 1.8 million
- ICBN - International Code of Botanical Nomenclature
- ICZN - International Code of Zoological Nomenclature
- Each biological name is made up of two components, generic name and specific epithet. This system is called as binomial system.
- Biological names are generally in Latin and written in italics. They are latinised or derived from Latin irrespective to their origin.
- Both the words in a biological name, when handwritten, are separately underlined, or printed in italics to indicate their Latin origin.
- Classification is the process by which any thing is grouped into convenient categories based on some easily observable characters.
- The group included in taxonomic categories is called as taxon.
- Characterisation, identification, nomenclature and classification are the processes that are basic to taxonomy.
- Category is a part of overall taxonomic arrangement and all categories together constitute the taxonomic hierarchy.
- As we go higher from species to kingdom the number of common characteristics goes on decreasing.
- Herbarium is a store house of collected plant specimens that are dried, pressed and preserved on sheets.
- Keys : The keys are based on the contrasting characters generally in a pair called couplet. Each statement in the key is called a lead.
- Keys are generally analytical in nature.
- Flora : It contains the actual account of habitat and distribution of plants of a given area. These provide the index to the plant species found in a particular area.
- Monograph : It contains complete informations on any one taxon.
- Aristotle was the earliest to attempt a more scientific basis for classification.
- Aristotle divided animals into two groups (1) Having red blood cells and (2) Do not having red blood cells.
- R.H. Whittaker's Classification is phylogenetic classification.
- Archaeobacteria differ from other bacteria in having a different cell wall structure and this feature is responsible for their survival in extreme conditions.
- Some cyanobacteria can fix atmospheric N_2 in their specialised cells called heterocysts. eg. Nostoc & Anabaena.
- In diatoms the cell walls form two thin overlapping shells, which fit together as in a soap box.
- The cell wall of diatoms (chrysophytes) are embedded with silica and thus the walls are indestructible.
- Red dinoflagellates undergo very rapid multiplication so they make the sea appear red, called as red tides.
- The cell wall of fungi is composed of chitin and polysaccharides.
- Some fungi can live as symbionts in association with algae (lichen) and with roots of higher plants as mycorrhiza.
- In fungi the sexual cycle involves .
(1) Plasmogamy (2) Karyogamy (3) Meiosis.
- Phycmycetes are found in aquatic habitats, on decaying wood on moist or damp places or as obligate parasites on plants.
- In ascomycetes and basidiomycetes dikaryotic ($n + n$, two nuclei per cell) condition is also found called as dikaryophase.
- Many members of ascomycetes like morels and bufftes are edible fungi.
- Members of basidiomycetes are mushrooms, bracket fungi and puffballs. They produce basidiospores exogenously on their basidium (pl. basidia). Some times basidia are arranged in fruiting bodies called basidiocarp.
- Deuteromycetes : they are commonly known as imperfect fungi because they reproduce only by asexual or vegetative reproduction, not by sexual reproduction. They produce septate and branched mycelium. Some members are saprophytes or parasites while- a large number of them are decomposers of litter and help in mineral cycling.

SOLVED EXAMPLE

THE LIVING WORLD

- Ex.1** As we go from species to kingdom in a taxonomic hierarchy, the number of common characteristics
 (A) Will decrease
 (B) Will increase
 (C) Remain same
 (D) May increase or decrease
Sol. (A) Will decrease
- Ex.2** Which of the following 'suffixes' used for units of classification in plants indicates a taxonomic category of 'family'.
 (A) – Ales (B) – Onae
 (C) – Aceae (D) – Ae
Sol. (C) Aceae
- Ex.3** The term 'systematics' refers to:
 (A) Identification and classification of plants and animals
 (B) Nomenclature and identification of plants and animals
 (C) Diversity of kinds of organisms and their relationship
 (D) Different kinds of organisms and their classification
Sol. (C) Diversity of kinds of organisms and their relationship
- Ex.4** Genus represents
 (A) An individual plant or animal
 (B) A collection of plants or animals
 (C) Group of closely related species of plants or animals
 (D) None of these
Sol. (C) Group of closely related species of plants or animals
- Ex.5** Botanical gardens and zoological parks have
 (A) Collection of endemic living species only
 (B) Collection of exotic living species only
 (C) Collection of endemic and exotic living species
 (D) Collection of only local plants and animals
Sol. (C) Collection of endemic and exotic living species
- Ex.6** Taxonomic key is one of the taxonomic tools in the identification and classification of plants and animals. It is used in the preparation of
 (A) Monographs (B) Flora
 (C) Both a & b (D) None of these
Sol. (C) Both a & b
- Ex.7** Which of the following is a defining characteristic of living organisms?
 (A) Growth
 (B) Ability to make sound
 (C) Reproduction
 (D) Response to external stimuli
Sol. (D) Response to external stimuli
- Ex.8** The term "biology" was introduced by
 (A) Aristotle
 (B) Darwin
 (C) Lamarck and Treviranus
 (D) Linnaeus
Sol. (C)
- Ex.9** 'Father of Biology' is
 (A) Curvier (B) Aristotle
 (C) Lamarck (D) Theophrastus
Sol. (B)
- Ex.10** Who is called 'Father of Zoology'?
 (A) Aristotle (B) Darwin
 (C) Hippocrates (D) Theophrastus
Sol. (A)
- Ex.11.** 'Father of Botany' is
 (A) Brunfels (B) Aristotle
 (C) Theophrastus (D) Linnaeus
Sol. (C)
- Ex.12** Crick, one of the discoverer of DNA double helical structure, was the man of
 (A) Physics (B) Chemistry
 (C) Zoology (D) Botany
Sol. (A)
- Ex.13** Which one of the following aspects is an exclusive characteristic of living things.
 (A) Perception of events happening in the environment and their memory
 (B) Increase in mass by accumulation of material both on surface as well as internally
 (C) Isolated metabolic reactions occurs in vitro
 (D) Increase in mass from inside only
Sol. (A)

Exercise # 1**SINGLE OBJECTIVE****NEET LEVEL**

1. Most acceptable concept of species is :-
(A) Static concept (B) Biological concept
(C) Typological concept (D) Genetic concept
2. Artificial system of classification classifies plants on the basis of :-
(A) One or two characters
(B) Phylogenetic trends
(C) Many naturally existing characters
(D) None of the above
3. The term new systematics was introduced by :-
(A) Linnaeus (B) Bentham
(C) Hutchinson (D) Huxley
4. Group of organisms that closely resemble each other and freely interbreed in nature, constitute a :-
(A) Species (B) Genus
(C) Family (D) Taxon
5. ICBN was first revised in :-
(A) 1961 (B) 1964
(C) 1975 (D) 1753
6. The term taxon refers to :-
(A) Name of a species
(B) Name of genus
(C) Name of family
(D) A taxonomic group of any rank
7. The herbarium specimen on whose basis a new species is described for the first time is called as :-
(A) Syntype (B) Holotype
(C) Paratype (D) Neotype
8. The scientific naming of plants began with publication of Linnaeus book :-
(A) Genera plantarum (B) Systema naturae
(C) Species plantarum (D) Charaka samhita
9. Which book most impressed the opinion of taxonomists :-
(A) Enquiry into plants (B) Origin of life
(C) Genera plantarum (D) Origin of species
10. The basic smallest unit of classifications is :-
(A) Genus (B) Species
(C) Order (D) All of the above
11. Suffix for sub species is :-
(A) Phytina (B) Oideae
(C) Ineae (D) None
12. Individuals of same species having non-genetic differences due to environment are called :-
(A) Biotypes (B) Ecotype
(C) Ecophenes (D) None
13. Morphologically similar but reproductively isolated species are called :-
(A) Neontological species (B) Sibling species
(C) Allopatric species (D) Morpho-species
14. Plant nomenclature means :-
(A) To give names to plants without any rules
(B) Nomenclature of plants under the international rules
(C) Nomenclature of plants in local language
(D) Nomenclature of plants in english language
15. Taxonomy refers to :-
(A) Plant classification (B) Plant nomenclature
(C) Plant affinity (D) All the above
16. Which of the following is a correct name :-
(A) Solanum tuberosum
(B) Solanum Tuberosum
(C) Solanum tuberosum Linn.
(D) All the above
17. Systematics deals with :-
(A) Classification (B) Nomenclature
(C) Plant description (D) Identification

Exercise # 2

SINGLE OBJECTIVE

AIIMS LEVEL

1. Static concept of species is given by :-
 (A) Linnaeus (B) Bentham
 (C) Koch (D) Mayr
2. In taxonomy the first step is :-
 (A) Identification (B) Nomenclature
 (C) Classification (D) Affinities
3. The suffix – inae signifies the rank :-
 (A) Tribe (B) Subtribe
 (C) Suborder (D) Sub family
4. Species living in different geographical areas are called
 (A) Allochronic (B) Allopatric
 (C) Sympatric (D) Siblings
5. A large number of unknown species of plants and animals are believed to be present in :-
 (A) Temperate forests (B) Antarctica
 (C) Taiga (D) Tropical forest
6. Biological concept of species proposed by :-
 (A) Linnaeus (B) Mayr
 (C) John Ray (D) De Candolle
7. For higher plants, flowers are chiefly used as a basis of classification, because :-
 (A) These show a great variety in colour
 (B) It can be preserved easily
 (C) Reproductive parts are more conservative than vegetative parts
 (D) None of these
8. Individuals of same species having genetic variation and occur in same environment are called:-
 (A) Biotypes (B) Ecotype
 (C) Ecophenes (D) Ecads
9. The binomial system of nomenclature was initially proposed by :-
 (A) Magnus (B) Bauhin
 (C) Caesalpinno (D) Discorides
10. Biochemical resemblances are used in the identification of:-
 (A) Protistan species (B) Moneran species
 (C) Fungal species (D) Higher plants
11. Concept of phylogeny was proposed by :-
 (A) John Ray (B) Lamarck
 (C) Ernest Haeckel (D) Darwin
12. A division is formed by combining several :-
 (A) Orders (B) Families
 (C) Classes (D) Tribes
13. An international code of botanical nomenclature was first proposed in the year :-
 (A) 1930 (B) 1830
 (C) 1913 (D) 1813
14. For declaration of new species of higher plants what characters are used :-
 (A) Floral character of new species
 (B) Anatomical characters of new species
 (C) Physiological character of new species
 (D) Character of endosperm
15. The standard size of herbarium sheets is :-
 (A) 11.5" × 16.5" (B) 15.5" × 16.5"
 (C) 18.5" × 10.5" (D) 20.5" × 21.5"
16. Which statement is true :-
 (A) Tautonyms are not allowed in plants
 (B) Tautonyms are not allowed in animals
 (C) Tautonyms normally allowed in animals and some time allowed in plants
 (D) Tautonyms allowed only in bacteria
17. Trinomial nomenclature of classification was proposed by :-
 (A) Linnaeus
 (B) Huxley and Stricklandt
 (C) John-Ray
 (D) Theophrastus

Exercise # 3**PART - 1****MATRIX MATCH COLUMN**

1. Match Column - I with column - II and select the correct option from codes given below :

Column - I	Column - II
A. Planaria	i. Binary fission
B. Fungi	ii. Asexual spores
C. Yeast	iii. Budding
D. Amoeba	iv. True regeneration
	v. Fragmentation
(A) A-i, B-ii, C-iii, D-iv	(B) A-iv, B-ii, v, C-iii, D-i
(C) A-ii, B-v, C-i, D-iv	(D) A-v, B-ii, i, C-iii, D-iv

2. Match Column - I with Column - II and select the correct option from the codes given below.

Column - I	Column - II
A. Binomial nomenclature	i. Hippocrates
B. The Darwin of the 20 th century	ii. Earnst Mayr
C. Father of Botany	iii. Linnaeus
D. Father of medicine	iv. Theophrastus
(A) A-iii, B-ii, C-iv, D-i	(B) A-iii, B-ii, C-i, D-iv
(C) A-i, B-ii, C-iii, D-iv	(D) A-ii, B-iii, C-iv, D-i

3. Match column - I with column - II and select the correct option from codes given below.

Column - I	Column - II
A. John Ray	i. Gave the concept of new systematics
B. C. Linnaeus	ii. First described species as a unit of classification
C. Aristotle	iii. Father of Zoology
D. Julian	iv. Introduced binomial nomenclature
(A) A - i, B - ii, C - iii, D - iv	(B) A - iv, B - iii, C - ii, D - i
(C) A - ii, B - iii, C - i, D - iv	(D) A - ii, B - iv, C - iii, D - i

4. Match Column - I with Column - II and select the correct option from codes given below.

Column - I	Column - II
A. Royal botanical garden,	i. Lucknow
B. Indian botanical garden,	ii. England
C. National Botanical Research Institute	iii. Howrah
D. Llyord Botanical garden	iv. Darjeeling
(A) A - ii, B - iii, C - i, D - iv	(B) A - i, B - iii, C - ii, D - iv
(C) A - iv, B - ii, C - i, D - iii	(D) A - iv, B - iii, C - ii, D - i

5. Match Column - I with Column - II and select the correct option from codes given below.

Column - I	Column - II
A. Botanical garden	i. Preserved plant specimens
B. Zoogical park	ii. Preserved plant and animal specimens
C. Museum	iii. Living plants
D. Herbarium	iv. Living wild animals

Exercise # 4

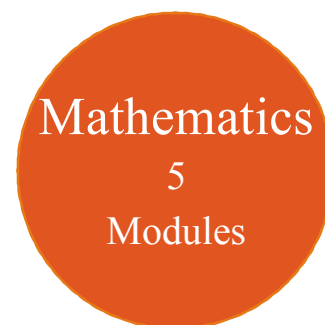
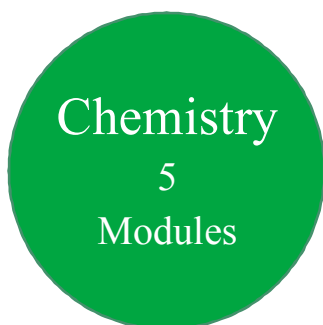
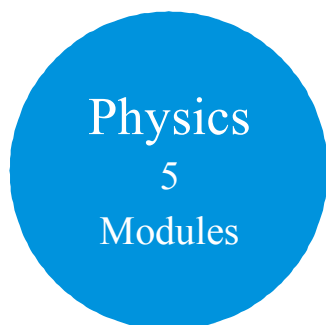
PART - 1

PREVIOUS YEAR (NEET/AIPMT)

1. The most important feature of all living systems is to [CBSE AIPMT-2000]
 - (A) utilise oxygen to generate energy
 - (B) replicate the genetic information
 - (C) Produce gametes
 - (D) Utilise solar energy for metabolic activities
2. Relative Biological Effectiveness (RBE) is usually referred to damages caused by. [CBSE AIPMT-2000]
 - (A) Low temperature
 - (B) high temperature
 - (C) encephalitis
 - (D) radiation
3. First life on earth was. [CBSE AIPMT-2001]
 - (A) cyanobacteria
 - (B) chemoheterotrophs
 - (C) autotrophs
 - (D) photoautotrophs
4. Reason of diversity in living being is . [CBSE AIPMT-2001]
 - (A) mutation change
 - (B) gradual change
 - (C) long term evolutionary
 - (D) short term evolutionary change
5. There is no life on moon due to the absence of. [CBSE AIPMT-2002]
 - (A) O₂
 - (B) water
 - (C) light
 - (D) temperature
6. More than 70% of world's fresh water is. [CBSE AIPMT-2002]
 - (A) antarctica
 - (B) greenland
 - (C) glaciers and mountains
 - (D) polar ice
7. Carbohydrates the most abundant biomolecules on earth, are produced by. [CBSE AIPMT-2005]
 - (A) All bacteria, fungi and algae
 - (B) fungi, algae and green plant cells
 - (C) some bacteria, algae and green plant cells
 - (D) viruses, fungi and bacteria
8. Which one of the following is an example of negative feedback loop in humans ? [CBSE AIPMT-2007]
 - (A) Constriction of skin blood vessels and contraction of skeletal muscles when it is too cold
 - (B) Secretion of tears after falling of sand particles into the eye
 - (C) Salivation of mouth at the sight of delicious food
 - (D) Secretion of sweat glands and constriction of skin blood vessels when it is too hot
9. The living organisms can be un-exceptionally distinguished from the non - living things on the basis of their ability. for. [CBSE AIPMT-2007]
 - (A) responsiveness to touch
 - (B) interaction with the environment and progressive evolution
 - (C) reproduction
 - (D) growth and movement
10. Biological organisation starts with. [CBSE AIPMT-2007]
 - (A) Sub-microscopic molecular level
 - (B) cellular level
 - (C) organismic level
 - (D) atomic level
11. Study the four statements (I-VI) given below and select the two correct ones out of them : [CBSE AIPMT-2016]
 - (I) Definition of biological species was given by Ernst Mayr.
 - (II) Photoperiod does not affect reproduction in plants
 - (III) Binomial nomenclature system was given by RH Whittaker
 - (IV) In unicellular organisms, reproduction is synonymous with growth.
 - (A) II and III
 - (B) III and IV
 - (C) I and IV
 - (D) I and II
12. The label of a herbarium sheet does not carry information on [CBSE AIPMT-2016]
 - (A) date of collection
 - (B) name of collector
 - (C) local names
 - (D) height of the plant
13. Nomenclature is governed by certain universal rules. Which one of the following is contrary rules. Which one of the following ? [CBSE AIPMT-2016]
 - (A) The first word in a biological name represents the genus name and the second is a specific epithet
 - (B) The names are written in Latin and are Italicised
 - (C) When written by hand, the names are to be underlined
 - (D) Biological names can be written in any language

- Nomenclature is governed by certain universal rules. Which one of the following is contrary to the rules of nomenclature?
 - The names are written in Latin and are italicised.
 - When written by hand the names are to be underlined.
 - Biological names can be written in any language
 - The first word in a biological name represents the genus name and the second is a specific epithet.
- Which of the following is the correct scientific name of wheat derived by binominal nomenclature?
 - Triticum Vulgare*
 - Triticum aestivum*
 - Oryza sativa*
 - Zea mays*
- Assertion :** Consciousness is considered as the defining property of living organisms.
Reason : All organisms, from the prokaryotes to the most complex eukaryotes can sense and respond to environmental stimuli.
 - If both assertion and reason are true and reason is the correct explanation of assertion.
 - If both assertion and reason are true but reason is not the correct explanation of assertion.
 - If assertion is true but reason is false.
 - If both assertion and reason are false.
- ICBN stands are
 - Indian Council of British Nature
 - International Code for Biological Nomenclature
 - International Code for Botanical Nomenclature
 - Indian Code for Biological Nomenclature.
- Binomial nomenclature means
 - one name given by two taxonomists
 - two names, the latinized, other of a person
 - two names, one scientific, other local
 - two-word names, the first indicates genus, and other species.
- Scientific names of plants are based on principles and criteria agreed by and are given in
 - IUCN
 - ICZN
 - ICBN
 - ICPN
- Point out the correct method of showing scientific name of coconut palm derived by binomial nomenclature.
 - Cocos nucifera*
 - Cocos Nucifera*
 - cocos Nucifera*
 - Cocos nucifera*
- Read the statements given below and identify the incorrect statement.
 - Scientific names are used all over the world.
 - Scientific names are often descriptive and tell us some important character of an organism.
 - Scientific names indicate relationship between species.
 - Scientific names favour multiple naming for the same kind of an organism.

11th Class Modules Chapter Details



PHYSICS	CHEMISTRY	BIOLOGY
<p>Module-1</p> <ol style="list-style-type: none"> 1. Physical World & Measurements 2. Basic Maths & Vector 3. Kinematics <p>Module-2</p> <ol style="list-style-type: none"> 1. Law of Motion & Friction 2. Work, Energy & Power <p>Module-3</p> <ol style="list-style-type: none"> 1. Motion of system of particles & Rigid Body 2. Gravitation <p>Module-4</p> <ol style="list-style-type: none"> 1. Mechanical Properties of Matter 2. Thermal Properties of Matter <p>Module-5</p> <ol style="list-style-type: none"> 1. Oscillations 2. Waves 	<p>Module-1(PC)</p> <ol style="list-style-type: none"> 1. Some Basic Concepts of Chemistry 2. Atomic Structure 3. Chemical Equilibrium 4. Ionic Equilibrium <p>Module-2(PC)</p> <ol style="list-style-type: none"> 1. Thermodynamics & Thermochemistry 2. Redox Reaction 3. States Of Matter (Gaseous & Liquid) <p>Module-3(IC)</p> <ol style="list-style-type: none"> 1. Periodic Table 2. Chemical Bonding 3. Hydrogen & Its Compounds 4. S-Block <p>Module-4(OC)</p> <ol style="list-style-type: none"> 1. Nomenclature of Organic Compounds 2. Isomerism 3. General Organic Chemistry <p>Module-5(OC)</p> <ol style="list-style-type: none"> 1. Reaction Mechanism 2. Hydrocarbon 3. Aromatic Hydrocarbon 4. Environmental Chemistry & Analysis Of Organic Compounds 	<p>Module-1</p> <ol style="list-style-type: none"> 1. Diversity in the Living World 2. Plant Kingdom 3. Animal Kingdom <p>Module-2</p> <ol style="list-style-type: none"> 1. Morphology in Flowering Plants 2. Anatomy of Flowering Plants 3. Structural Organization in Animals <p>Module-3</p> <ol style="list-style-type: none"> 1. Cell: The Unit of Life 2. Biomolecules 3. Cell Cycle & Cell Division 4. Transport in Plants 5. Mineral Nutrition <p>Module-4</p> <ol style="list-style-type: none"> 1. Photosynthesis in Higher Plants 2. Respiration in Plants 3. Plant Growth and Development 4. Digestion & Absorption 5. Breathing & Exchange of Gases <p>Module-5</p> <ol style="list-style-type: none"> 1. Body Fluids & Its Circulation 2. Excretory Products & Their Elimination 3. Locomotion & Its Movement 4. Neural Control & Coordination 5. Chemical Coordination and Integration

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12th Class Modules Chapter Details

Physics
5
Modules

Chemistry
5
Modules

Mathematics
5
Modules

PHYSICS	CHEMISTRY	BIOLOGY
<p>Module-1</p> <ol style="list-style-type: none"> 1. Electrostatics 2. Capacitance <p>Module-2</p> <ol style="list-style-type: none"> 1. Current Electricity 2. Magnetic Effect of Current and Magnetism <p>Module-3</p> <ol style="list-style-type: none"> 1. Electromagnetic Induction 2. Alternating Current <p>Module-4</p> <ol style="list-style-type: none"> 1. Geometrical Optics 2. Wave Optics <p>Module-5</p> <ol style="list-style-type: none"> 1. Modern Physics 2. Nuclear Physics 3. Solids & Semiconductor Devices 4. Electromagnetic Waves 	<p>Module-1(PC)</p> <ol style="list-style-type: none"> 1. Solid State 2. Chemical Kinetics 3. Solutions and Colligative Properties <p>Module-2(PC)</p> <ol style="list-style-type: none"> 1. Electrochemistry 2. Surface Chemistry <p>Module-3(IC)</p> <ol style="list-style-type: none"> 1. P-Block Elements 2. Transition Elements (d & f block) 3. Co-ordination Compound 4. Metallurgy <p>Module-4(OC)</p> <ol style="list-style-type: none"> 1. HaloAlkanes & HaloArenes 2. Alcohol, Phenol & Ether 3. Aldehyde, Ketone & Carboxylic Acid <p>Module-5(OC)</p> <ol style="list-style-type: none"> 1. Nitrogen & Its Derivatives 2. Biomolecules & Polymers 3. Chemistry in Everyday Life 	<p>Module-1</p> <ol style="list-style-type: none"> 1. Reproduction in Organisms 2. Sexual Reproduction in Flowering Plants 3. Human Reproduction 4. Reproductive Health <p>Module-2</p> <ol style="list-style-type: none"> 1. Principles of Inheritance and Variation 2. Molecular Basis of Inheritance 3. Evolution <p>Module-3</p> <ol style="list-style-type: none"> 1. Human Health and Disease 2. Strategies for Enhancement in Food Production 3. Microbes in Human Welfare <p>Module-4</p> <ol style="list-style-type: none"> 1. Biotechnology: Principles and Processes 2. Biotechnology and Its Applications 3. Organisms and Populations <p>Module-5</p> <ol style="list-style-type: none"> 1. Ecosystem 2. Biodiversity and Conservation 3. Environmental Issues

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