1. The Living World

Scan for Video Solution

Topic-wise Questions

1. (a) Growth is a common characteristic exhibited by both living and non-living.

2. (c) In living organisms and in non-living objects increase in body mass can be taken as criterion for growth.

3. (a) Metabolism, and consciousness are the defining property of living organism without exception. Growth and reproduction are not the defining property as they have certain exceptions.

4. (d) Self-consciousness is found in human beings only while consciousness is present in all organism, from the prokaryotes to the most complex eukaryotes.

5. (c) Increase in mass and increase in number of individuals are twin characteristics of growth.

6. (c) In majority of higher animals and plants, growth and reproduction are mutually exclusive events.

7. (a) In non-living objects growth is by accumulation of material on the surface.

8. (b) Replication of the genetic information is most important feature of living organisms which causes transfer of genetic information from one generation to the next. It is very important feature of all living organisms.

9. (a) The sum total of chemical reactions occurring in our body is called metabolism.

10. (d) The biological processes operate within the life span of a given organism includes giving birth to new ones, take and provide food for nutrition, growth and maturation, metabolic reactions and excretion of waste substances.

11. (c) Metabolism enables a living body to grow, develop and function according to the need and environments.

12. (a)

13. (b)

Column I	Column II
A. Fungi	i. Asexual spore
B. *Amoeba*	ii. Binary fission
C. *Hydra* and Yeast	iv. Budding
D. *Planaria*	iii. True regeneration

14. (d) The fungi, the filamentaus algae (not all algae), the protonema of mosses, all easily multiply by fragmentation.

15. (a)

16. (d) In *Mangifera indica*, *indica* indicates specific epithet or name of species.

17. (a) **18. (a)**

19. (b) In binomial nomenclature, the name of an organism consists of name of genus and species.

20. (d) One scientific name cannot be used for two related species.

21. (b) Animal taxonomists have evolved International Code of Zoological Nomenclature (ICZN).

22. (a) **23. (c)**

24. (b) Modern day classification includes all the characteristics of organisms gathered from the study of different fields like physiology, ecology, anatomy, biochemistry, cytology, etc.

25. (c) Phenetic classification is based upon easily observable characteristics of an organism.

26. (a) The concept of new systematics was developed by Julian Huxley.

27. (d) In biological name, the first word starts with a capital letter and the second word (specific epithet) starts with a small letter. Both the words, when printed, are in italics to indicate their Latin orgin.

28. (b) Trinomial nomenclature of gorilla is *Gorilla gorilla gorilla*.

29. (a) John Ray described species as a unit of classification.

30. (a)

31. (b) Human being were since long, not only interested in knowing more about different kinds of organisms and their diversities, but also the relationship among them. This branck of study is referred to as systematics.

32. (c) Characterisation, identification, classification and nomenclature are the processes that are basic to taxonomy.

33. (c) Nomenclature or naming is only possible when the organism is described correctly and we know to what organism the name is attached to. This is known as identification.

34. (b) The naming of living organisms such that a particular organism is known by the same name all over the world. This process is called nomenclature.

35. (d) **36. (b)**

37. (a) Scientific name ensures that each organism has only one name all over the world.

38. (a) Binomial system is practised by biologist all over the world.

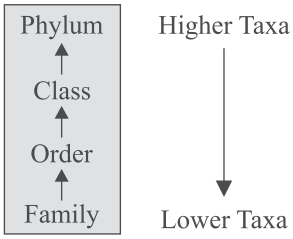
39. (a) The word systematics is derived from systema which is a Latin word.

40. (a) The word 'systematics' refers to diversity of kinds of organism and relationship among them.

41. (b)

42. (b)

43. (c) In taxonomic hierarchy, higher the taxa, less are the characteristics that the members within taxon share.



So, division has the least number of similar characters.

44. (a) In the taxonomic hierarchy, the highest taxon includes the rest like kingdom includes rest six taxonomic categories. Here phylum is the highest taxon, hence includes the rest three itself.

45. (d) Unit of classification is rank, taxon or category.

46. (a) Connecting link between kingdom and class in plant hierarchy is phylum.

47. (d) Collection of actual specimen is essential and is the prime source of taxonomic studies of plants and animals.

48. (c) Taxa is the plural of taxon.

49. (c) Birds taxonomically represent class.

50. (d) The correct sequence of taxonomic categories is:
Species → Genus → Family → Order → Class → Phylum or division → Kingdom.

51. (d) The botanists use division and variety in place of phylum and sub-species respectively.

52. (c) Taxon can be used for any taxonomic rank.

53. (c) The seven basic categories of taxonomic hierarchy are Kingdom, Phylum, Class, Order, Family, Genus and Species.

54. (b) Fishes, amphibians, reptiles, birds and mammals constitute in the same category, called phylum (chordata).

55. (a) Each different kind of plant, animal or organism that you see, represents a species.

56. (d) Two individuals belongs to the same species if they are interbreeding and produce fertile offspring.

57. (d) The smallest unit of classification is species.

58. (a) **59. (d)**

60. (b) Genus *Solanum* includes both potato and brinjal. Datura and tulip are different genera.

61. (d) **62. (d)**

63. (b) The species given here belong to 7 different families.

Species	Family
Man	Hominidae
Housefly	Muscidae
Mango	Anacardiaceae
Wheat	Poaceae/Graminae
Dog	Canidae
Cat, lion, tiger, leopard	Felidae
Potato, brinjal, makoi	Solanaceae

64. (d) **65. (b)**

66. (d) The closest category of family is order.

67. (c) Convolvulaceae and Solanaceae are included in the order polymoniales mainly on the basis of floral characters.

68. (a) **69. (b)**

70. (c) If two plant (like mango and potato) belongs to same division (i.e., angiospermae) but different order (mango—sapindales and potato—polymoniales). They may belong to same class (i.e., dicotyledonae).

71. (c) **72. (b)**

73. (a) The order generally ends with suffix -ales.

74. (b)

75. (b) In case of plants, classes with a few similar characters are assigned to a higher category called division.

76. (b) The taxonomic unit 'Phylum' in the classification of animals is equivalent to division in classification of plants.

77. (a) **78. (a)**

79. (c) Herbaria serve as a quick referral system in taxonomical studies.

80. (b) The pesticide that is used in preparation of herbarium is mercuric chloride.

81. (b)

82. (a) **83. (b)**

84. (c) Museum have collection of preserved plant and animals specimens for study and reference.

85. (d) Insects are placed in museum after collection, killing and pinning.

86. (b) In museums, larger animals like birds and mammals are usually stuffed and preserved.

87. (a)

88. (d) Larger animals like birds and mammals are usually stuffed and preserved in museum.

89. (d) Museum have the collection of insects specimens, larger animal specimens and skeleton of animals.

90. (c) Royal Botanical Garden is located at Kew, England.

91. (c) Herbarium and Botanical Gardens only have preserved specimens. Rest all taxonomic aids have living organisms or their listed descriptions

92. (d) Museums have collections of preserved plant and animal specimens for study and reference. Key is used for identification of plants and animals. Herbarium is a store house of collected plant specimens.

93. (d)

94. (d) *In situ* (on site) conservation- It is an approach to maintain species of wild animals and plants in their natural habitats. It includes biosphere reserves, national parks and sanctuaries, sacred groves, etc.
Zoological parks, botanical gardens and wildlife safari parks are the examples of *ex situ* (off site) conservation.

95. (d) Wild animals kept in zoological parks.

96. (b) **97. (b)** **98. (d)**

99. (d) Couplet represents the choice made between two opposite options by which we can make acceptance of only one and rejection of the other.

100. (d) Taxonomical keys are analytical in nature, taxonomical aid used for identification of both plants and animals and keys are based on the contrasting characters.

101. (b) Manuals is useful in providing information for identification of names of species found in an area.

102. (c)

103. (d) Monograph, manuals and flora help in correct identification.

104. (d) Monographs contain information on any one taxon.

NCERT Based Questions

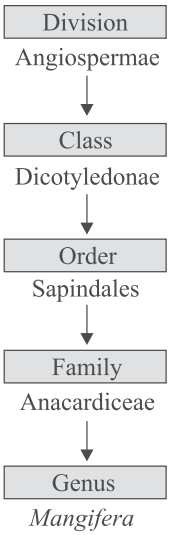
1. (a) Lower the taxa, more are the characteristic that the members within the taxon share. So, lowest taxon share the maximum number of morphological similarities, while its similarities decrease as we move towards the higher hierarchy, i.e., class, kingdom.
Thus, rest of the option are incorrect.

2. (c) The word systematics is derived from Latin word '*Systema*' which means systematic arrangement of organisms.

3. (d) All the given statements are correct:
In majority of higher plants and animals, growth and reproduction are mutually exclusive events.
In non-living objects growth is by accumulation of material on the surface.
An isolated metabolic reaction outside the body of an organism, performed in a test tube is neither living nor non-living.
All organisms, from the prokaryotes to the most complex eukaryotes can sense and respond to environmental cues.

4. (d) The process by which anything grouped into convenient categories based on some easily observable characters is called classification.

5. (d)



6. (c) Genus comprises a group of closely related species which has more characters in common in comparison to species of other genera. The other options do not define genus.

7. (c) Division includes classes with few similar characters of group of organism. It is equivalent to 'Phylum' in case of animals.

8. (b)
- Herbarium is a store house of collected plant specimens that are dried, pressed ad preserved on sheets.
- Each statements in the key is called lead.
- The keys are based on the contrasting characters generally in a pair called couplet.

9. (d) Order is the assemblage of families which exhibit a few similar characters
Cat and dog are included in the different families.

10. (a) All living organisms are linked to one another because they show common genetic material but to varying degree.

11. (c) Botanical gardens and Zoological parks are used to restore depleted population, reintroduce species, *i.e.,* wild and restore degraded habitats of both exotic and endemic living species. Rest of the options are incorrect.

12. (a) Phylum is interpolated between class and kingdom. All related phyla are assigned to the highest category called Kingdom. Class includes related orders.

13. (c) –aceae 'suffixes' used for units of classification in plants indicates a taxonomic category of 'family'.

14. (b) One of the most important function of botanical gradens is that they allow *ex situ* conservation.

15. (b) Specific epithet is second name in the scientific name of a species.

16. (c) *Canis familiaris* has correct specific epithet.

17. (d) Response to external stimuli or to the environment in which an organism lives, is the most important characteristic of any living organism, besides growth and reproduction.
Growth and ability to make sound are some properties that can also be observed in non-living things. While virus (which is not included under living organisms)
also show growth and reproduction.
Hence, these options are not true.

18. (d) Biological classification is the scientific arrangement or organisms in a hierarchical series of groups and subgroups on the basis of similarities and differences in their traits. It helps in identifying new organisms.

19. (d) **20. (c)**

21. (c) In plants, growth takes place by cell division or multiplication continuously in all parts throughout their life span.

22. (a) Taxonomic hierarchy refers to the step-wise classification of plant and animals into various categories.

23. (a) Artificial system of classification is based on one or two characters.

24. (b) **25. (d)**

26. (d) The name Santapau after the name of the species describes that the system proposed by Linnaeus was modified by Santapau and thus the name is mentioned after the particular variety of mango.

27. (a) For the classification or identification of higher plants, floral characters, i.e., structures of anther and carpel are taken into consideration. The morphological, anatomical and physiological characters are considered later.

28. (b) The correct options matching with the columns represent the taxonomic classification of plant potato are

Family	—	Solanaceae
Kingdom	—	Plantae
Order	—	Polymoniales
Genus	—	*Solanum*
Species	—	*tuberosum*

29. (d) Disadvantages of using common names are as follows:

i. Different species of plants may have the common name.

ii. They are restricted to the people of one or two regions of a country.

iii. The name may vary from region to region.

iv. They are not regulated by any constituted authority.

30. (b) Key is a taxonomical aid which is based on the contrasting characters. it helps in the identification of plants and animals on the basis of similarities and dissimilarities.

31. (a) All the given descriptions are related to taxonomic category called species. Species, the lowest category in the taxonomic hierarchy, is the basic unit of taxonomy. It is the group of individual organisms with fundamental similarities.

32. (c)

33. (c) The bracketed key in taxonomical identification provides only one pair of contrasting statements.

34. (d) Reproduction by fragmention can be seen easily in protonema of mosses, filamentous algae and in the fungi.

35. (a)

36. (d) Classification helps in understanding diverse varieties of organisms and also gives an idea about the origin and evolution of organisms which are morphologically similar.
Classification is needed:

(i) For convenient study of living organisms.

(ii) For specific identification of various organisms.

(iii) To integrate the idea of life by studying new representative from each group.

(iv) To study about evolutionary relationship by establishing the gradually increasing complexities in group of plants and animals.

Multi-Concept Questions

1. (c) **2. (d)**

3. (c) Herpetology: study of amphibians.
Saurology: study of lizards.
Ichthyology: study of fish science.
Taxonomy: Classification of animals and plants.

4. (b) **5. (d)**

6. (c) The reproductive structures of flowering plants are subjected to a much lesser degree of evolutionary pressure while vegetative characters such as structure, size or shape of leaves are often environmentally controlled and extremely variable within a genus or species.

7. (d) Endemic species are plants and animals that exist in a defined geographical location.

8. (a) **9. (b)**

10. (d) Key is another taxonomical aid used for identification of plants and animals based on the similarities and dissimilarities. The keys are based on the contrasting characters generally in a pair called couplet. Keys are generally analytical in nature.

11. (a) The goals of classification includes recognition and complete description of different species; development of a system for easy identification of various species; to establish relationships on the basis of resemblance and differences between organisms; and formulating a scheme of hierarchical grouping of species.

12. (a) **13. (a)**

14. (d) Category denotes rank and each rank or taxon represents a unit of classification. These taxonomic categories are distinct biological entities and not merely morphological aggregates.

15. (d) **16. (d)**

17. (b) Statement A and C are incorrect. An isolated metabolic reaction(s) outside the body of an organism, performed in a test tube is neither living nor non-living. Reproduction also cannot be an all-inclusive defining characteristic of living organisms.

18. (c)

19. (d) All living organisms grow. Increase in mass and increase in number of individuals are twin characteristics of growth. The sum total of all the chemical reactions occurring in our body is metabolism. Metabolic reactions can be demonstrated outside the body in cell-free systems. The most obvious and technically complicated feature of all living organisms is this ability to sense their surroundings or environment and respond to these environmental stimuli which could be physical, chemical or biological.

20. (b) Felis is a genus of small and medium-sized cat species. *E.coli* - Full name *Escherichia coli. Musca domestica* is a housefly.

21. (d) Biodiversity refers to the variety and variability of life on earth.

Biodiversity includes living organisms from all sources, including terrestial, marine and other aquatic systems and the ecological complexes of which they are part.

22. (b) Genera are aggregates of closely related species. Each genus may have one or more than one specific epithets representing different organisms, but having morphological similarities. For example, Lion (*Panthera leo*), leopard (*P. pardus*) and tiger (*P. tigris*) with several common features, are all species of the genus *Panthera*.

23. (d) Biological museums are generally set up in educational institutes such as schools and colleges. Museums have collections of preserved plant and animal specimens for study and reference. Specimens are preserved in the containers or jars in preservative solutions. Museums often have collections of skeletons of animals too.

24. (c) **25. (d)**

26. (b) The plants become dried by transferring their moisture into the blotting sheets. Blotting papers need to be changed regularly until the plant gets dried. The changing time depends on the weather conditions.

27. (d) The taxonomic hierarchy for *Mangifera indica* can written as Plantae → Angiospermae → Dicotyledonae → Sapindales → Anacardiaceae → *Mangifera indica*

Taxonomic keys are generally analytical in nature. Family Fabaceae is divided into three sub-families, i.e., Leguminosae, Mimosaceae and Caesalpiniaceae.

28. (a) Potato, tomato and brinjal are three different species but all belong to the genus *Solanum*. Genus is an assembly of related species. *Solanum* is a polytypic genera with more than one species.

29. (b) A herbarium is shown in the given figure. It is a store house of collected plant specimens that are dried, pressed and preserved on sheets. Children love visiting zoological parks.

NEET Past 10 Year Questions

1. (b) ***NCERT (XI) Ch - 1, Pg. 7***

According to rules of binomial nomenclature, correctly written scientific name of mango is *Mangifera indica* Linn.

2. (d) ***NCERT (XI) Ch - 1, Pg. 11-14***

Dried plant specimens are pressed and preserved on sheets in herbarium. Key is a record of characters-based identification of specimen and in museum, all kind of plants and animals are preserved for exhibition purpose. Catalogue helps in identification purpose.

3. (b) ***NCERT (XI) Ch - 1, Pg. 11-14***

Herbarium is a store house of collected plant specimens that are dried, pressed and preserved on sheets.

4. (a) ***NCERT (XI) Ch - 1, Pg. 4-6***

Ernst Mayr pioneered the currently accepted definition of a biological species.

Photoperiod affect reproduction in plants.

Binomial nomenclature system was given by Carolus

Linnaeus and is being practiced by biologists all over the world.

When reproduction comes to unicellular organisms like bacteria, unicellular algae or Amoeba, reproduction is synonymous with growth, i.e., increase in number of cells.

5. (b) ***NCERT (XI) Ch - 1, Pg. 12***

The herbarium sheets carry a label providing information about date and place of collection, English, local and botanical names, family, collector's name, etc

6. (c) ***NCERT (XI) Ch - 1, Pg. 11***

Family - Muscidae

Order - Diptera

Class - Insecta

Phylum - Arthropoda

7. (d) ***NCERT (XI) Ch - 1, Pg. 12***

A museum has a collection of dead remains of plants and animals in preserved form.

Specimens are preserved in the containers or jars in preservative solutions. Plant and animal specimens may also be preserved as dry specimens. Insects are preserved in insect boxes after collecting, killing and pinning. Larger animals like birds and mammals are usually stuffed and preserved. Museums often have collections of skeletons of animals too.

8. (b) ***NCERT (XI) Ch - 1, Pg. 7 and 11***

In binomial nomenclature, the scientific name consists of two words. The first word represents genus and starts with a capital word. The second word represents specific epithet and starts with a small letter. *Musca domestica* is a housefly. *Panthera tigris* is the Indian tiger. The full name of *E.coli* is *Escherichia coli*. *Plasmodium*, a tiny protozoan, is responsible for malarial disease.

9. (a) ***NCERT (XI) Ch - 1, Pg. 5***

The most obvious and technically complicated feature of all living organisms is the ability to sense their surroundings or environment and respond to these environmental stimuli which could be physical, chemical or biological.

10. (d) ***NCERT (XI) Ch - 1, Pg. 6***

Biodiversity represents total number of species present on earth. There are approximately 1.7-1.8 million species present on earth.

11. (b) ***NCERT (XI) Ch - 1, Pg. 11***

Human : *Homo* (Genus), *sapiens* (species), Hominidae (family)

Housefly : *Musca* (genus), *domestica* (species)

Tiger : *Panthera* (genus), *tigris* (species)

Cuttlefish : Mollusca (phylum)