Chapter 3

The Living World

Solutions (Set-1)

SECTION - A

School/Board Exam. Type Questions

Very Short Answer Type Questions :

1. What is classification?

Sol. Classification is the process by which anything is grouped into convenient categories based on some easily observable characters.

2. Expand ICBN and ICZN.

Sol. **ICBN :** International Code for Botanical Nomenclature

ICZN : International Code of Zoological Nomenclature

3. What does 'Linn.' represent in *Mangifera indica* Linn.?

Sol. 'Linn' indicates that this species was first described by Linnaeus, as the author's name is added after specific name in abbreviated form.

4. Write the category present in the taxonomic hierarchy when arranged in the ascending order.

   (a) After genus

   (b) Before order

Sol. (a) Species

   (b) Class

5. Write the scientific name of the following :

   (a) Leopard

   (b) Brinjal

Sol. (a) *Panthera pardus*

   (b) *Solanum melongena*

6. Write the family of the following :

   (a) *Mangifera indica*

   (b) *Triticum aestivum*

Sol. (a) Anacardiaceae

   (b) Poaceae

7. Name the preservative solution, used to preserve biological specimens in museums.

Sol. Formalin

8. What is metabolism?

Sol. The sum total of all the chemical reactions occurring in cell is called metabolism.

9. Name an organism where true regeneration occurs.

Sol. *Planaria*

10. Name the order which includes families like Felidae and Canidae.

Sol. Carnivora

Short Answer Type Questions :

11. What is binomial nomenclature? What are its various components? Who proposed the concept of binomial nomenclature?

Sol. The system of providing a name with two components to an organism is called binomial nomenclature.

The two components of a scientific name are – generic name and specific epithet. The concept of binomial nomenclature was proposed by Carolus Linnaeus.

12. What forms the basis of modern taxonomic studies?

Sol. External and internal structure, along with the structure of cell, development process and ecological information of organisms are essential and form the basis of modern taxonomic studies.

13. Write a short note on museums.

Sol. Museums have collections of preserved plant and animal specimens for study and reference. Specimens are preserved in the container or jars in preservative solutions. Plants and animals specimens may also be preserved as dry specimens. Insects are preserved in insect boxes after collecting, killing and pinning. Large animals like birds and mammals are usually stuffed and preserved. Museum often have collections of skeletons of animal too.

14. Describe the fourth category of the taxonomic hierarchy.

Sol. **Order** is the fourth category of the taxonomic hierarchy. It is a group of related families that means related families are kept in the same order. It is the assemblage of families which exhibit few similar characters. The similar characters are less in number as compared to different genera included in a family.

Example - Plant families like Convolvulaceae, Solanaceae are included in the order Polymoniales mainly based on the floral characters.

15. What are flora, monographs and catalogues? Why are they important?

Sol. Flora, monographs and catalogues are some other means of recording descriptions. They also help in correct identifications. Flora contains the actual account of habitat and distribution of plant of a given area. These provide the index to the plant species found in a particular area. Monographs contain informations on any one taxon.

16. What are botanical gardens? Give examples.

Sol. Botanical gardens are specialised gardens which have collections of living plants for reference. Plant species in these gardens are grown for identification purposes and each plant is labelled indicating its botanical or scientific name and its family.

Example - Indian Botanical Garden, Howrah; National Botanical Research Institute, Lucknow

17. What do you understand by taxonomic aids?

Sol. The certain procedures and techniques to store and preserve the informations as well as the specimens are called taxonomic aids.

18. Why growth is not the defining property of living organisms?

Sol. Increase in mass and increase in number of individuals are the two characteristics of growth. Non-living objects also grow if we take increase in body mass as a criterion for growth. However, this kind of growth is exhibited by non-living objects by accumulation of material on the surface. In living organisms, growth is from inside. Therefore, growth is not taken as the defining property of living organism.

19. Why metabolism is a defining feature of all living organisms?

Sol. The sum total of all the chemical reactions occurring in our body is metabolism. No non-living object exhibits metabolism. Metabolic reactions can be demonstrated outside the body in cell-free system. An isolated metabolic reactions outside the body of an organisms, performed in a test tube is neither living nor non-living. Isolated metabolic reactions *in vitro* are not living things but surely living reactions. Hence, metabolism is a defining feature of all living organism without exception.

20. *Canis lupus* is scientific name of wolf. Write any two rules which are followed while writing this scientific name.

Sol. (a) The first word in this name represents the genus, *i.e.*, *Canis* while the second component denotes the specific epithet, *i.e.*, *lupus*.

(b) The first letter of genus is capital and of species is small. For example, *Canis* starts with capital letter whereas *lupus* starts with small letter.

(c) These two names are underlined separately when hand-written.

21. Fishes, amphibians, reptiles are included in the phylum Chordata. Why?

Sol. They are included in the phylum Chordata because of the presence of notochord and dorsal hollow neural system.

22. Write the generic and specific name of tiger.

Sol. Generic name – *Panthera*

Specific name – *tigris*

23. How can you define self-consciousness of an organism and why it cannot be the defining feature of living state of a human being?

Sol. Self-consciousness is the ability of an organism to sense its surroundings or environment and respond according to the environmental stimuli.

Living phenomenon in human beings is highly complex and is not attributable to the feature of consciousness alone as in certain medical conditions, patients are observed to lose consciousness yet functional metabolically due to the underlying interactions among the constituent cells.

24. Can reproduction be used as an all-inclusive defining characteristic of living organisms? Give two examples to support your answer.

Sol. No, reproduction cannot be used as an all-inclusive defining characteristic of living organisms.

Examples :

(a) Mules, worker bees, infertile human couples are all living organisms on the basis of other defining characters but they lack the capacity to reproduce. They are sterile and are not able to produce young ones.

(b) The unicellular algae, bacteria, amoeba etc. divide to increase the number of cells. The increase in number of cell is equivalent to growth. Therefore, it is not clear if division of cell should be considered as growth or reproduction.

25. What do you mean by systematics? Write the origin of the word systematics.

Sol. Systematics is the science that deals with diversity of organisms and all their comparative and evolutionary relationships by comparing group of organisms at every level of classification right from species to the kingdom.

The word systematics is derived from the Latin word '*Systema*' which means systematic arrangement of organisms.

26. Which taxonomical aid serves as quick referral system for identification of plants? Expand NBRI.

Sol. Herbarium serves as quick referral system for taxonomic research. National Botanical Research Institute.

27. Write the genus and family to which species *pardus*, *tigris*, *leo*, belong

Sol. Genus – *Panthera*

Family – Felidae

28. Answer the following questions

(a) Name the family in which *Solanum*, *Petunia* and *Datura* are placed.

(b) What is the title of the publication based on systematics published by Linnaeus?

Sol. (a) Family – Solanaceae

(b) *Systema Naturae*

29. Define herbarium.

Sol. Herbarium is a store house of collected plant specimens that are dried, pressed and preserved on sheets. These specimens, along with their descriptions on herbarium sheets become a store house or repository for future use.

30. What do you understand by the terms?

(a) Couplet

(b) Lead

Sol. (a) The contrasting characters generally occurring in pair is called couplet. The key, a taxonomical aid used for identifying plants and animals is based on a couplet.

(b) Each statement in the key is called a lead.

Long Answer Type Questions :

31. How can you define a living organism? Why growth is not considered as a defining feature of life?

Sol. Living organisms are self-replicating, evolving and self-regulating interactive systems capable of responding to various external stimuli.

Growth is not considered as a defining feature of life because it is defined as an increase in body mass which is observed in both living (such as animals) and non-living systems (such as mountains). Thus, growth fails to be the only criterion for defining life.

32. Give the four most unique features of living state and comment on the failure of any two as the life defining feature of living organisms.

Sol. The four most unique features of living state include :

(a) Growth, (b) Reproduction, (c) Metabolism and (d) Self-consciousness

(a) **Growth :** It cannot be used as an all-inclusive defining property of living system because certain non-living systems such as mountains etc. also show increase in size and number of constituents.

(b) **Reproduction :** Reproduction also fails to be the defining feature as many organisms such as mules do not reproduce even once during their lifetime.

(c) **Metabolism :** The metabolic reactions occurring inside living organisms can also be demonstrated outside the body in cell-free systems. Therefore, metabolism cannot be considered as the only life defining feature.

(d) **Self-consciousness :** Not all living systems are in a condition to sense and respond to their environmental stimuli, as is the case in certain medical conditions. Therefore, self-consciousness alone cannot be used as the life defining feature.

33. Explain the following :

(a) Nomenclature (b) Need of nomenclature

(c) Pre-requisite for nomenclature (d) ICBN

(e) ICZN

Sol. (a) **Nomenclature :** The process of giving a standardised name to living organisms is called nomenclature.

(b) **Need of nomenclature :** Nomenclature is necessary to eliminate any confusion in the names of organisms across the world.

(c) **Pre-requisite for nomenclature :** Identification is the pre-requisite to nomenclature as correct naming is possible only after correctly describing the organism.

(d) **ICBN :** It stands for International Code for Botanical Nomenclature, which provides principles and criteria for writing scientific names of plants.

(e) **ICZN :** It stands for International Code of Zoological Nomenclature, which provides principles and criteria for writing scientific names of animals.

34. What are the universal rules of nomenclature?

Sol. Universal rules of nomenclature are as follows :

(i) Biological names are generally in Latin and they are Latinised it from other language.

(ii) The first word in a biological name represents the genus while the second component denotes the specific epithet.

(iii) Both the words in a biological name, when handwritten are separately underlined, or printed in italics to indicate their Latin origin.

(iv) The first word denoting the genus starts with a capital letter while the specific epithet starts with a small letter.

35. (a) What is the genus, family, order, class, phylum, kingdom and scientific name of man?

(b) Give the alternate term of phylum used for classifying plants.

Sol. (a) Genus – *Homo* Order – Primata

Family – Hominidae Class – Mammalia

Phylum – Chordata Kingdom – Animalia

Scientific name – *Homo sapiens*

(b) Division

36. Give hierarchical arrangement of taxonomic categories in ascending order. Write any three species of genus *Panthera*.

Sol.

Kingdom
↑
Phylum/Division
↑
Class
↑
Order
↑
Family
↑
Genus
↑
Species

Species of genus *Panthera* are

(i) *leo*

(ii) *pardus*

(iii) *tigris*

37. (a) Name the scientific naming system having two components.

(b) Who proposed this system?

(c) Name the two components of this system.

(d) Write the scientific names of mango, potato and lion, along with the families they belong to.

Sol. (a) Binomial nomenclature

(b) Carolus Linnaeus

(c) Two components :

(i) Generic name

(ii) Specific epithet

(d) Mango – *Mangifera indica*

Family – Anacardiaceae

Potato – *Solanum tuberosum*

Family – Solanaceae

Lion – *Panthera leo*

Family – Felidae

38. (a) Write two rules of nomenclature that are followed when scientific names are handwritten.

(b) Write the scientific names of man, housefly and leopard and identify the genus of each.

Sol. (a) **Rules :**

(i) When handwritten, both the words of a biological name are separately underlined.

(ii) The first word denoting the genus starts with a capital letter while the specific epithet starts with a small letter.

(b) Scientific names :

Man $\rightarrow$ *Homo sapiens*

Genus $\rightarrow$ *Homo*

Housefly $\rightarrow$ *Musca domestica*

Genus $\rightarrow$ *Musca*

Leopard $\rightarrow$ *Panthera pardus*

Genus $\rightarrow$ *Panthera*

39. What is/are

(a) Taxonomy?

(b) Uses of taxonomic studies (any two)?

(c) Prime source of taxonomic studies?

(d) Pre-requisite for taxonomic studies?

Sol. (a) The classification of all living organisms into different taxa on the basis of varying characteristics is called taxonomy.

(b) Taxonomic studies are useful in various fields such as agriculture, forestry and industry. Taxonomic studies also help in knowing bioresources and their diversity.

(c) The collection of actual specimens of plant and animal species is the prime source of taxonomic studies.

(d) Taxonomic studies require correct classification and identification of organisms.

40. (a) Define the following terms :

(i) Taxon

(ii) Taxonomic hierarchy

(iii) Taxonomic category

(b) Arrange the following in ascending order of taxonomic hierarchy.

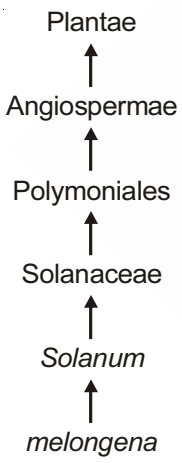
Solanum, Polymoniales, Solanaceae, *melongena*, Angiospermae, Plantae

Sol. (a) (i) **Taxon :** Each category included in taxonomic hierarchy referred to as a unit of classification which represents a rank is commonly called taxon.

(ii) All categories or taxa together constitute the taxonomic hierarchy.

(iii) **Taxonomic category :** The categories which are used for the classification of living organisms in taxonomy.

(b)



SECTION - B

Model Test Paper

Very Short Answer Type Questions :

1. Write codes of biological nomenclature for plants and animals.

Sol. ICBN – International Code for Botanical Nomenclature for plants, and ICZN – International Code of Zoological Nomenclature for animals.

2. Identify the generic and specific names in the given scientific names.

Rosa indica and *Felis domestica*

Sol. **Generic name :** *Rosa* and *Felis*

Specific name : *indica* and *domestica*

3. Define taxonomy.

Sol. Taxonomy is the study that deals with principles and procedures of identification, nomenclature and classification of organisms.

4. How many major categories are included in the taxonomic hierarchy? Which is the highest category in this hierarchy?

Sol. Seven

Kingdom

5. Which of the following share more common characters?

Species or Class, Kingdom or Family, Species or Genus

Sol. Species or genus

6. Name any two taxonomical aids.

Sol. Herbarium, Botanical gardens, Museum, Zoological parks and Key (any two).

7. What is herbarium?

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

8. Why manuals are used as taxonomical aids?

Sol. Manuals are used as taxonomical aids because they are useful in providing information for identification of names of species found in an area.

Short Answer Type Questions :

9. Write four features of living organisms.

Sol. Features of living organisms are (any 4) :

(i) Growth

(ii) Reproduction

(iii) Metabolism

(iv) Cellular organisation of the body

(v) Consciousness

10. Which of the following represents phylum, class, family and species in the given classification of housefly.

Arthropoda, Insecta, Diptera, *Muscidae*, *Musca, domestica*

Sol. Phylum – Arthropoda

Class – Insecta

Family – Muscidae

Species – *domestica*

11. Define the given terms.

(a) Identification

(b) Biodiversity

Sol. (a) **Identification :** It means finding of correct name and place of the organism in a system of classification.

(b) **Biodiversity :** It refers to the diverse life forms of a particular habitat. For example, in forests large number of different types of living organisms are found.

12. The common name of wheat is easy to learn as compared to its scientific name *Triticum aestivum*. Then why do we have scientific name for it?

Sol. (i) The use of a scientific name avoids the confusion among the biologists.

(ii) It ensures that each organism is universally recognised by an exclusive name.

13. Write the scientific name of the following animals.

(a) Dog (b) Potato

Sol. (a) **Dog :** *Canis familiaris*

(b) **Potato :** *Solanum tuberosum*

14. How will you preserve the following organisms in a museum?

(a) Plant and animal (b) Insects

Sol. (a) **Plant and animal :** Some plant and animal specimens are preserved as dry specimens whereas some larger animals like birds and mammals are usually stuffed and preserved.

(b) **Insects :** Insects are preserved in insect boxes after collecting, killing and pinning.

15. Explain herbarium sheets.

Sol. Herbarium sheets are arranged according to a universally accepted system of classification. These herbarium sheets carry a label providing information about date and place of collection. English, local and botanical names, family, collector's name etc. are also labelled on these sheets which helps in their easy study.

Short Answer Type Questions :

16. Why is reproduction not considered as the defining characteristic of living organisms?

Sol. Because there are many organisms which cannot reproduce but are living. For example, mules, sterile worker bees, infertile human couples etc. Similarly, in case of unicellular organisms, it is not clear whether they reproduce or grow. As their number of cells increases when they reproduce asexually which is correlated with the growth.

17. Who gave binomial nomenclature? Why is it necessary?

Sol. Carolus Linnaeus.

Binomial nomenclature is a system of providing a name with two components – generic name and specific name or specific epithet which helps in avoiding the confusion among the people of different areas of the world because in comparison to scientific names, the local names or common names vary from region to region, even within a country. Therefore, scientific names should be assigned to each living organism, so that all biologists and people use the single name for a particular organism.

18. Explain the category present between phylum and order in brief with examples.

Sol. The taxon present between phylum and order is class. It is a group of related orders that means related orders are kept in the same class. For example, the order rodentia of rats, primata of monkey, gorilla and gibbon, lagomorpha of rabbits and carnivora of cats and dogs are placed in the same class mammalia. All these orders are kept in the same class because all the animals present in these orders have similar characters such as presence of mammary glands and hair on their skin.

19. Write the classification of mango plant starting from division.

Sol. Division – Angiospermae

Class – Dicotyledonae

Order – Sapindales

Family – Anacardiaceae

Genus – *Mangifera*

Species – *indica*

20. Define the following with an example :

(a) Taxon

(b) Species

Sol. (a) **Taxon :** Each category included in taxonomic hierarchy referred to as a unit of classification which represents a rank is commonly called taxon.

(b) **Species :** It is a group of populations which resemble one another in all essential morphological and reproductive characters, so that they are able to interbreed freely and produce fertile offsprings. For example, *leo* is a species of lion.

21. Write a short note on zoological parks.

Sol. These are the places where wild animals are kept in protected environments under human care and enable us to learn about their food habits and behaviour. All animals in a zoo are provided as far as possible the conditions similar to their natural habitats.

Long Answer Type Questions :

22. Describe key as a taxonomical aid in detail.

Sol. Key is a taxonomical aid used for identification of plants and animals based on the similarities and dissimilarities. The keys are based on the contrasting characters generally occurring in a pair called couplet. It represents the choice made between two opposite options. This results in acceptance of one and rejection of the other. Each statement in the key is called a lead. Separate taxonomic keys are required for each taxonomic category such as family, genus and species for identification purposes. Keys are generally analytical in nature.

23. Give hierarchical arrangement of taxonomic categories in descending order. Write the genus of man, makoi and tiger.

Sol.

Kingdom
↓
Phylum/Division
↓
Class
↓
Order
↓
Family
↓
Genus
↓
Species

Genus of

(i) Man is *Homo*.

(ii) Makoi is *Solanum*.

(iii) Tiger is *Panthera*.

❑ ❑ ❑

Aakash Medical | IIT-JEE | Foundations (Divisions of Aakash Educational Services Limited)

Solutions (Set-2)

Objective Type Questions

(What is Living?, Diversity in the Living World)

1. Which of the following is not a result of cell division?

   (1) Growth (2) Repair (3) Metabolism (4) Reproduction

Sol. Answer (3)

Growth, repair and reproduction are the result of cell division.

2. Mark the **incorrect** pair.

   (1) *Hydra* – Budding (2) Flatworm – Regeneration

   (3) *Amoeba* – Fragmentation (4) Yeast – Budding

Sol. Answer (3)

Amoeba divides by binary fission

3. Which of the following is **incorrect** for reproduction?

   (1) Unicellular organisms reproduce by cell division

   (2) Reproduction is a characteristic of all living organisms

   (3) In unicellular organisms, reproduction and growth are linked together

   (4) Non-living objects are incapable of reproducing

Sol. Answer (2)

Reproduction is absent in sterile organism like mule, hinny, sterile/infertile human couples, worker bees etc.

4. Mark the **incorrect** statement w.r.t. metabolism.

   (1) Microbes exhibit the metabolism

   (2) It is the property of all living forms

   (3) The metabolic reactions can be demonstrated *in-vitro*

   (4) It is not a defining feature of life forms

Sol. Answer (4)

Metabolism is a defining feature.

5. Non-living objects exhibit/show

   (1) Property of self-replication (2) Evolution

   (3) Self-regulating interactive systems (4) Reversible growth

Sol. Answer (4)

Non-living objects do not show-

(a) Property of self replication

(b) Evolution

(c) Self-regulating interactive systems

6. Which statement is false about the growth shown by non-living objects?

(1) The growth occurs from outside

(2) The growth is reversible

(3) The growth is due to the accumulation of material on the surface

(4) The growth is intrinsic

Sol. Answer (4)

The growth shown by non-living objects is extrinsic.

7. Local names of various plants and animals

(1) Help in recognizing organisms worldwide (2) Are used universally

(3) Are specific and distinct names (4) Vary from place to place

Sol. Answer (4)

Local names of various plants and animals are non-universal.

8. Which of the following is **incorrect** w.r.t. Binomial nomenclature?

(1) Biological names are generally in Latin

(2) The first word in a biological name represents the genus

(3) Biological names are printed in italics

(4) The first word of the genus starts with a small letter

Sol. Answer (4)

In Binomial nomenclature, genus always starts with a capital letter.

9. What do A, B and C represent in the given scientific name respectively?

Mangifera	*indica*	Linn
C	B	A

(1) Generic name, specific name and author's name

(2) Specific name, generic name and author's name

(3) Author's name, specific name and generic name

(4) Generic name, author's name and specific name

Sol. Answer (3)

In binomial nomenclature, Ist name is genus, 2nd is species epithet and 3rd is author's name (optional).

10. Which of the following is **incorrect** regarding scientific names?

(1) These are also known as common names

(2) These ensure that each organism has only one name

(3) These have two components – the generic name and specific epithet

(4) These are universally accepted names

Sol. Answer (1)

Scientific names are given by biologist based upon agreed rules and criteria.

11. According to binomial nomenclature, every living organism has
    (1) Two scientific names with single component
    (2) One scientific name with two components
    (3) Two names, one Latin and other common
    (4) One common name with three components

Sol. Answer (2)

Every living organism has one scientific name with two components.

12. Taxonomy deals with
    (1) Development of zoological parks
    (2) Study of kinds and diversity of microorganisms only
    (3) Evolutionary relationships between organisms
    (4) Classification of diverse organisms in different taxa

Sol. Answer (4)

Taxonomy is classification of diverse organisms in different taxa.

13. Which of the following features are not shown by scientific names of various organism?
    (1) They consists of two components
    (2) They have Latin origin
    (3) They always have “linn” abbreviation at the end of second component
    (4) They are printed in italics

Sol. Answer (3)

In scientific names author's name is optional and written in abbreviated roman.

14. The correct sequence of taxonomic study of a newly discovered organism is
    (1) First classification then identification, nomenclature and characterization
    (2) First identification then classifying organism and then characterizations and nomenclature
    (3) First nomenclature then characterization, identification and classification
    (4) First characterisation then identification and classification and then nomenclature

Sol. Answer (4)

Correct sequence of taxonomic study is

Characterisation $\rightarrow$ Identification $\rightarrow$ Nomenclature $\rightarrow$ Classification

(First) (Last)

15. Which one of the following statements given below is not included in universal rules of nomenclature?
    (1) Generic names and specific epithet should be in Latin words
    (2) Generic name is immediately followed by name of taxonomists who described it firstly
    (3) Generic name must begin with capital letter
    (4) All letters of the specific name must be small

Sol. Answer (2)

Fact based

16. Which one of the following criteria is/are essential and form the basis of classical taxonomic studies?

(1) Ecological information of organisms

(2) Development process

(3) External and internal structure

(4) External structure

Sol. Answer (4)

Basis of modern taxonomic studies.

External and internal structure

Developmental process

Ecological information of organisms

(Taxonomic Categories)

17. Which of the following is **incorrect** w.r.t. Species?

(1) A group of individual organisms with fundamental similarities

(2) Two different species breed together to produce fertile offsprings

(3) Human beings belong to the species *sapiens*

(4) *Panthera* has many specific epithet as *tigris*, *leo* and *pardus*

Sol. Answer (2)

Two different species cannot breed together to produce fertile offsprings.

18. Find the correct sequence of taxonomic categories.

(1) Division → Kingdom → Genus → Order

(2) Species → Genus → Family → Order

(3) Class → Order → Family → Division

(4) Kingdom → Class → Species → Order

Sol. Answer (2)

Correct sequence of taxonomic categories.

Species → Genus → Family→ Order

19. Which of the following is a class?

(1) Mammalia (2) Sapindales (3) Primate (4) Poales

Sol. Answer (1)

Mammalia – Class

Sapindales – Order

Primata – Order

Poales – Order

20. _____ is the assemblage of families which exhibit a few similar characters.

(1) Class (2) Genus (3) Species (4) Order

Sol. Answer (4)

Species → Genus → Family→ Order→ Class→ Division→ Kingdom

21. Fill in the blanks A and B.

Kingdom → Phylum → **[A]** → Order → **[B]**

(1) A - Genus; B - Species (2) A - Family; B - Class

(3) A - Class; B - Family (4) A - Species; B - Division

Sol. Answer (3)

Fact based

22. Match the following columns

	Column-I		**Column-II**
a.	Binomial nomenclature	(i)	Carolus Linnaeus
b.	Generic name	(ii)	Muscidae
c.	Family	(iii)	*Panthera*
d.	*Systema naturae*		

(1) a(i), b(iii), c(iii), d(ii) (2) a(i), b(iii), c(ii), d(i) (3) a(ii), b(i), c(i), d(iii) (4) a(iii), b(i), c(ii), d(i)

Sol. Answer (2)

Binomial nomenclature – Carolus Linnaeus

Generic name – Panthera

Family – Muscidae

Systema naturae – Carolus Linnaeus

23. Genus is a category which comes in between the

(1) Family and Species (2) Class and Family (3) Order and Phylum (4) Kingdom and Class

Sol. Answer (1)

Species → Genus → Family

24. Three different genera *Solanum*, *Petunia* and *Datura* are placed in the family

(1) Poaceae (2) Anacardiaceae (3) Hominidae (4) Solanaceae

Sol. Answer (4)

Genera – *Solanum*, *Petunia*, *Datura*

↓

Family – Solanaceae

25. Cat and dog are placed in which families respectively

(1) Felidae and Hominidae (2) Muscidae and Felidae

(3) Poaceae and Canidae (4) Felidae and Canidae

Sol. Answer (4)

Animal – Cat	Dog
↓	↓
Family – Felidae	Canidae

26. In which of the following pair of category, greater is the difficulty of determining the relationship to other taxa at the same level, thus the problem of classification becomes more complex?

(1) Genus and species (2) Tribe and genus

(3) Division and phylum (4) Species and family

Sol. Answer (3)

Division and Phylum are at very next higher rank and they have lower number of similarity

27. In taxonomic hierarchy, which of the following group of taxa will have less number of similarities as compared to other?

(1) Solanaceae, Convolvulaceae and Poaceae (2) Polymoniales, Poales and Sapindales

(3) *Solanum*, *Petunia* and *Atropa* (4) Leopard, tiger and lion

Sol. Answer (2)

(1) Solanaceae, Convolvulacea, Poaceae – Family

(2) Polymoniales, Poales, Sapindales – Order

(3) *Solunum*, *Petunia* and *Atropa* – Genus

(4) Leopard , Tiger, Lion – Species

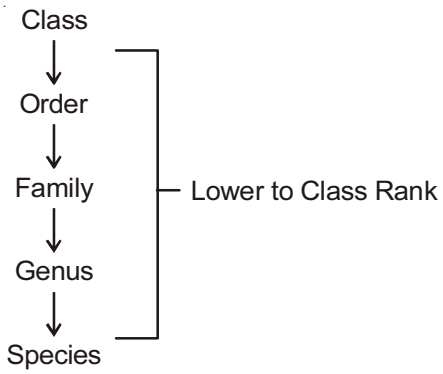
Less number of similarity will be in order.

28. Taxonomic categories which come lower to the rank of class are

(1) Order, phylum, family, species (2) Order, family, genus, species

(3) Division, family, order, genus (4) Order, division, genus, species

Sol. Answer (2)



29. Two animals A and B have similar morphological features and are fundamentally similar with each other, they must be treated as

(1) One biological species (2) Two distinct species

(3) One biological genera (4) Two distinct genera

Sol. Answer (1)

Morphological feature, Fundamentally → Similar → One biological species

(Taxonomical Aids)

30. A place used for storing, preservation and exhibition of both plants and animals is known as

(1) Herbaria (2) Botanical Garden (3) Museum (4) Zoos

Sol. Answer (3)

Storing, preservation & exhibition → Plants & Animals → Museum

31. Herbarium consists of

(1) Collection of living plants

(2) Collection of plant and animal specimens preserved in the containers

(3) Preserved insects in boxes after collecting killing and pinning

(4) Herbarium sheets carrying dried, pressed and preserved plant specimens on them

Sol. Answer (4)

Herbarium consists of dried, pressed and preserved plant specimens.

32. National Botanical Research Institute consists of

(1) Dried and preserved plant specimens only

(2) Collection of preserved plant and animal specimens

(3) Flora, manuals and monographs only

(4) Collection of living plants for reference

Sol. Answer (4)

NBRI is a botanical garden, collection of living plants for reference.

33. Key is

(1) A form of herbaria

(2) A type of educational institute

(3) A taxonomical aid used for identifying various organisms

(4) Taxonomic category

Sol. Answer (3)

Key, a taxonomical aid, used for classification.

34. In zoological parks, animals are

(1) Kept and preserved in containers or jars (2) Preserved in boxes after killing

(3) Kept in protected environments under human care (4) Stuffed and then preserved

Sol. Answer (3)

Zoological parks, animals are kept in protected environments under human care.

35. For identifying organisms through key usually

(1) Two contrasting characters are used

(2) One similar character is studied

(3) Two or more similar characters are used

(4) Only one statement called lead is used

Sol. Answer (1)

Key, a taxonomical aid, has two contrasting characters.

❑ ❑ ❑

Aakash Medical | IIT-JEE | Foundations (Divisions of Aakash Educational Services Limited)