

DPP - Daily Practice Problems

Chapter-wise Sheets

Date :

Start Time :

End Time :

BIOLOGY

CB01

SYLLABUS : The Living World

Max. Marks : 180

Marking Scheme : + 4 for correct & (–1) for incorrect

Time : 60 min.

INSTRUCTIONS : This Daily Practice Problem Sheet contains 45 MCQs. For each question only one option is correct. Darken the correct circle/ bubble in the Response Grid provided on each page.

1. The living organisms can be unexceptionally distinguished from the non-living things on the basis of their ability for
 - (a) interaction with the environment and progressive evolution
 - (b) reproduction
 - (c) growth and movement
 - (d) responsiveness to touch.
2. Which one of the following animals is correctly matched with its particular named taxonomic category ?
 - (a) Tiger - *tigris*, the species
 - (b) Cuttle fish - mollusca, a class
 - (c) Humans - primata, the family
 - (d) Housefly - musca, an order
3. Taxonomic hierarchy refers to
 - (a) Step-wise arrangement of all categories for classification of plants and animals
 - (b) A group of senior taxonomists who decide the nomenclature of plants and animals
 - (c) A list of botanists or zoologists who have worked on taxonomy of a species or group
 - (d) Classification of a species based on fossil record
4. Choose correct scientific name of mango.
 - (a) *Mangifera Indica*
 - (b) *Mangifera indica* Linn
 - (c) *Mangifera indica* Hook.
 - (d) *Mangifera indica* L

RESPONSE GRID

1. (a)(b)(c)(d) 2. (a)(b)(c)(d) 3. (a)(b)(c)(d) 4. (a)(b)(c)(d)

Space for Rough Work

5. Arrange the following taxonomic categories in increasing number of common characteristics w.r.t. plant mango
 A. Dicotyledonae
 B. Polymoniales
 C. *Mangifera*
 D. Angiospermae
 E. Anacardiaceae
 (a) $A \rightarrow D \rightarrow B \rightarrow E \rightarrow C$
 (b) $A \rightarrow D \rightarrow C \rightarrow B \rightarrow E$
 (c) $D \rightarrow A \rightarrow B \rightarrow E \rightarrow C$
 (d) $D \rightarrow A \rightarrow C \rightarrow E \rightarrow B$
6. The common characteristics between brinjal and wheat can be observed maximum at the level of their.
 (a) Division (b) Phylum
 (c) Kingdom (d) Both (b) and (c)
7. Study of number of chromosomes for resolving difficulties in classification is used in
 (a) Chemotaxonomy
 (b) Morphotaxonomy
 (c) Cytotaxonomy
 (d) Biochemical taxonomy
8. Most names in biological nomenclature of living organisms are taken from which language?
 (a) Hindi (b) Latin
 (c) German (d) French
9. The main objective of plant taxonomy is
 (a) to study the world's flora
 (b) to provide a method for identification and nomenclature
 (c) to provide Latin 'scientific' names for every group of plants in the world
 (d) all of these
10. Which one of the following has least similar characters?
 (a) Family (b) Class
 (c) Genus (d) Species
11. The ascending or descending arrangement of taxonomic categories is called as
 (a) classification (b) taxonomy
 (c) hierarchy (d) key
12. Select the false statement
 (a) Carolus Linnaeus described plants and classified them on the basis of their sexual parts
 (b) Some facts established by accurate and repeated observations do not require further verification
 (c) Study of the vestigial organs is called teleology
 (d) 'White Revolution' resulted in enhanced production of milk
13. Animal taxonomists have named the animals according to:
 (a) International class for Zoology Nomenclature
 (b) Indian code for Zoology Nomenclature
 (c) International classification for Zoological Nomenclature
 (d) International code for Zoological Nomenclature
14. Which of the following statement is not true?
 (a) Homeostasis is a fundamental property of life
 (b) When the external temperature is warm, the superficial blood vessels constrict to prevent loss of body heat
 (c) Human beings are endothermic
 (d) Human beings are homeothermic
15. Species is :
 (a) population of individuals having same genotypes and phenotypes
 (b) a group of individuals inhabiting a geographical area
 (c) a group of interbreeding populations
 (d) population of one type
16. The usage of binomial names, for plant species was accepted by all after the publication of the work by :
 (a) Hooker (b) Linnaeus
 (c) Bentham (d) Darwin
17. Which of the following is less general in characters as compared to genus ?
 (a) Species (b) Division
 (c) Class (d) Family

**RESPONSE
GRID**

- | | | | | |
|------------------|------------------|------------------|------------------|------------------|
| 5. (a)(b)(c)(d) | 6. (a)(b)(c)(d) | 7. (a)(b)(c)(d) | 8. (a)(b)(c)(d) | 9. (a)(b)(c)(d) |
| 10. (a)(b)(c)(d) | 11. (a)(b)(c)(d) | 12. (a)(b)(c)(d) | 13. (a)(b)(c)(d) | 14. (a)(b)(c)(d) |
| 15. (a)(b)(c)(d) | 16. (a)(b)(c)(d) | 17. (a)(b)(c)(d) | | |

Space for Rough Work

18. A taxon with reference to classification of living organisms can be defined as
 (a) a group of similar genera
 (b) a group of similar species
 (c) a group of organisms based on chromosome numbers
 (d) a group of any one rank of organisms
19. Species are considered as
 (a) Real units of classification devised by taxonomists
 (b) Real basic units of classification
 (c) The lowest units of classification
 (d) Artificial concept of human mind which cannot be defined in absolute terms
20. Linneaus system of classification is :
 (a) Natural (b) Artificial
 (c) Phylogenetic (d) Progressive
21. The book systema naturae was written by
 (a) Carolus Von Linnaeus
 (b) Hutchinson
 (c) Engler and Prantl
 (d) Bentham & Hooker
22. "Ordines Anomali" of Bentham and Hooker includes :
 (a) Seed plants showing abnormal forms of growth and development
 (b) Plants represented only in fossil state
 (c) Plants described in the literature but which Bentham and Hooker did not see in original
 (d) A few orders which could not be placed satisfactory in the classification.
23. What is true for individuals of same species?
 (a) Live in same niche
 (b) Live in same habitat
 (c) Interbreeding
 (d) Live in different habitat
24. Biosystematics aims at
 (a) Identification and arrangement of organisms on the basis of their cytological characteristics
 (b) The classification of organisms based on broad morphological characters
 (c) Delimiting various taxa of organisms and establishing their relationships
 (d) The classification of organisms based on their evolutionary history and establishing their phylogeny on the totality of various parameters from all fields of studies
25. An animal with same generic, specific and subspecific names is
 (a) man (b) gorilla
 (c) rabbit (d) elephant
26. Two similar holotypes are called
 (a) Isotypes (b) Neotypes
 (c) Syntypes (d) Mesotypes
27. Which of the following is not a taxon?
 (a) Carnivora (b) Insectivora
 (c) Herbivora (d) Mastigophora
28. The category which includes related families is
 (a) Class (b) Phylum
 (c) Order (d) Kingdom
29. NBRI is situated at
 (a) Calcutta (b) Bombay
 (c) Madras (d) Lucknow
30. A duplicate of nomenclature type is termed by a taxonomist as
 (a) Syntype (b) Neotype
 (c) Paratype (d) Isotype
31. Classification based on sequencing of DNA and chemical nature of protein is
 (a) Chemotaxonomy
 (b) Cytotaxonomy
 (c) Adansonian taxonomy
 (d) Karyotaxonomy

RESPONSE
GRID

18. (a) (b) (c) (d) 19. (a) (b) (c) (d) 20. (a) (b) (c) (d) 21. (a) (b) (c) (d) 22. (a) (b) (c) (d)
 23. (a) (b) (c) (d) 24. (a) (b) (c) (d) 25. (a) (b) (c) (d) 26. (a) (b) (c) (d) 27. (a) (b) (c) (d)
 28. (a) (b) (c) (d) 29. (a) (b) (c) (d) 30. (a) (b) (c) (d) 31. (a) (b) (c) (d)

Space for Rough Work

32. *Rattus rattus* scientific name is an example of
 (a) Autonyms (b) Tautonyms
 (c) Synonyms (d) Homonyms
33. Species belonging to different time period are called
 (a) Syntype (b) Paratype
 (c) Lectotype (d) Isotype
34. A new nomenclatural type submitted when the original material is missing is known as
 (a) Holotype (b) Isotype
 (c) Paratype (d) Neotype
35. Choose the incorrect statement regarding herbarium
 (a) Dried specimens are poisoned by using DDT
 (b) The collections are kept inside metallic vasculum
 (c) Herbarium sheet is 41×29 cm
 (d) It is used for alpha taxonomic research
36. No non-living object is capable of reproduction or replication by itself. Although reproduction can not be an all-inclusive defining characteristics of living organisms because
 (a) Organisms like mules do not reproduce
 (b) It brings about variation in offsprings
 (c) Clones are blueprints of their parents
 (d) Drones (male honey bees) are produced parthenogenetically
37. Which of the following have more characters in common ?
 (a) Order (b) Class
 (c) Phylum (d) Family
38. Mark the odd one in the following:
 (a) Family (b) Class
 (c) Taxon (d) Phylum
39. Which of the following is a name for a taxon that is identical to other such name?
 (a) Autonym (b) Synonym
 (c) Homonym (d) Tautonym
40. Which of the following is an automatically created name?
 (a) Autonym
 (b) Synonym
 (c) Homonym
 (d) Tautonym
41. When the specific epithet exactly repeats generic name, it is called
 (a) Basionym (b) Synonym
 (c) Homonym (d) Tautonym
42. Which of the following is most important for speciation ?
 (a) Seasonal isolation
 (b) Reproductive isolation
 (c) Behavioural isolation
 (d) Temporal isolation
43. Species occurring in different geographical areas are called as
 (a) Sibling (b) Sympatric
 (c) Allopatric (d) Neopatric
44. All members of different species of plants and animals present in particular area make up
 (a) Population (b) Community
 (c) Ecosystem (d) Biosphere
45. The study of the kind of life in outer space is known as :
 (a) ecology (b) evolution
 (c) anthropology (d) exobiology

**RESPONSE
GRID**

32. (a)(b)(c)(d) 33. (a)(b)(c)(d) 34. (a)(b)(c)(d) 35. (a)(b)(c)(d) 36. (a)(b)(c)(d)
 37. (a)(b)(c)(d) 38. (a)(b)(c)(d) 39. (a)(b)(c)(d) 40. (a)(b)(c)(d) 41. (a)(b)(c)(d)
 42. (a)(b)(c)(d) 43. (a)(b)(c)(d) 44. (a)(b)(c)(d) 45. (a)(b)(c)(d)

Space for Rough Work

DAILY PRACTICE PROBLEM DPP CHAPTERWISE 1 - BIOLOGY

Total Questions	45	Total Marks	180
Attempted		Correct	
Incorrect		Net Score	
Cut-off Score	45	Qualifying Score	60
Success Gap = Net Score – Qualifying Score			
Net Score = (Correct \times 4) – (Incorrect \times 1)			

HINTS & SOLUTIONS

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1. (b) There are several factors and processes which differentiate living beings with non-living beings like reproduction, respiration, growth, etc. But among them reproduction is the only characteristic which differentiates without any exception, living being from non-living beings.
2. (a) *Panthera tigris* is the scientific name of tiger.
3. (a) 4. (b) 5. (c)
6. (a) The common characteristics between brinjal and wheat can be observed maximum at the level of their division.
7. (c) Cytotaxonomy is the study of chromosome number, size and behaviour.
8. (b) The original scientific names were taken from Latin and Greek languages. New names are now derived either from Latin language or are latinised. This is because Latin language is dead and therefore, it will not change in the form or spellings with the passage of time.
9. (d)
10. (b) The number of similar characters of categories decreases from lowest rank to highest rank in a taxonomic hierarchy. Out of the given categories i.e., family, class, genus and species, the class being the highest category possesses the least similar characters.
11. (c) Hierarchy of categories is the classification of organisms in a definite sequence of categories (taxonomic categories) in a descending order starting from kingdom and reaching upto species or an ascending order from species to kingdom. The number of similar characters of categories decreases from lowest rank (species) to highest rank (kingdom). The taxonomic hierarchy includes seven obligate categories-kingdom, division or phylum, class, order, family, genus and species. Some subcategories like tribe, subfamily, subspecies are also used whenever required.

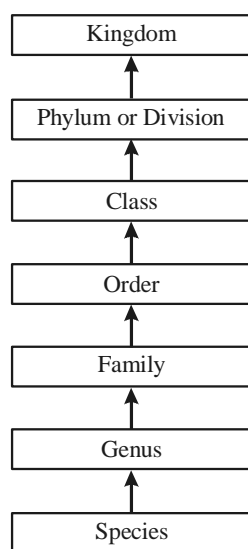


Fig: Taxonomical hierarchy showing arrangement in ascending order

12. (c) Teleology is the unscientific explanation of phenomena, while study of vestigial organs is known as dysteleology.
13. (d) International code for Zoological Nomenclature is responsible for setting rules for naming of animals and resolution of nomenclature problems.
14. (b) When external temperature is warm, the superficial blood vessels dilate to lose the body heat.
15. (c) The biological species concept was formulated by Theodosius Dobzhansky and Ernst Mayr. According to this concept "A species is a reproductive community of populations whose members can interbreed with each other but not with the members of other species.
16. (b) Carolus Von Linnaeus in his book *Genera Plantarum* made use of the artificial system of classification. He distinguished between the natural and artificial systems. He used the binomial nomenclature system and classified organisms into genus and species.
17. (a) Species is the lowest taxonomic category. Class is a category made of one or more related orders possessing similar correlated characters, Family is composed of one to many related genera. Division comprises of several related classes.
18. (d) Taxon is a grouping of organisms of any level in hierarchy of classification based on some common characteristic.
19. (c) Species is the lowest or basic taxonomic category comprising of one or more natural population of individuals that interbreed freely.
20. (b) Carolus Linnaeus system of classification is artificial.
21. (a) Carolus Von Linnaeus wrote the book *systema Naturae*.
22. (d) Bentham and Hooker system was published well before there were internationally accepted rules for botanical nomenclature. In this system, terminology for families was not so as it is now.
23. (c) Individuals of the same species can interbreed. No two individuals share the same ecological niche.
24. (d) Biosystematics is the study of diversity of organism and all their comparative and evolutionary relationships.
25. (b) Trinomial nomenclature of gorilla is *Gorilla gorilla gorilla*.
26. (a) Isotype refers to the duplicate of holotype. When the original material is missing, the new nomenclatural type is termed as neotype. When there is no holotype, any of two or more specimens cited by the author is named as syntype.
27. (c) Carnivora and Insectivora are two orders of mammals. Mastigophora is a class of Protozoa. Any plant-eating animal can be termed as a herbivore.
28. (c) Many related families can be grouped under an order.
29. (d) NBRI is a research institute situated in Lucknow that is engaged in the field of taxonomy and Modern biology.
30. (c) Holotype- a specimen on which the original description of the species is based.
Syntype- any of two or more specimens cited by author when there is no holotype.
Neotype- a specimen designated when the original types are known to have been destroyed.
Paratype- a specimen other than the holotype available with the author.
Isotype- a duplicate of the type.
31. (a) Chemotaxonomy is the method of biological classification based on similarities in the structure of certain compounds among the organisms being classified.
32. (b) Tautonym is the name in which both genus and species epithet are identical
33. (c) Lectotype is a specimen later selected to serve as the single type specimen for species originally described from a set of syntypes.

- 34. (d) Neotype is a type specimen that is selected subsequent to the description of a species to replace a pre-existing type that has been lost or destroyed.
- 35. (a) Dried specimens are poisoned not by DDT but by others like formaldehydes.
- 36. (a) Reproduction is a characteristic feature of all living organisms.
- 37. (b) Animals in lower hierarchy possess more characters in common.
- 38. (c) Phylum, class and family are classificatory units.
- 39. (c) Homonym is a name for a taxon that is identical in spelling to another such name, that belongs to a different taxon.
- 40. (a) Autonyms are automatically created names as regulated by the International code of Nomenclature for algae, fungi, and plants.
- 41. (d) A binomial name in which the specific name repeats the generic.
- 42. (b) The most important process for formation of new species is reproductive isolation as this prevents interbreeding in between members of a population, thus giving rise to new species.
- 43. (c) Two or more species which are reproductively isolated from each other but are morphologically quite similar are known as sibling species. Sympatric species are developed due to reproductive isolation and occur in overlapping or same area of geographical distribution. Parapatric species are developed in adjacent geographical areas meeting in very narrow regions of overlap.
- 44. (b) Members of same species form population and members of different species form community.
- 45. (d) Exobiology is the study of possible extra-terrestrial life.