

The Living World — NEET MCQs with Solutions

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Q1. The ability of living organisms to maintain a stable internal environment despite external changes is called

- (A) Homeostasis
- (B) Adaptation
- (C) Acclimatisation
- (D) Regeneration

Q2. Dormancy in living organisms is best described as

- (A) State of reduced but not absent metabolic activity
- (B) Complete absence of all metabolism
- (C) A permanent state equivalent to death
- (D) Phase of continuous rapid growth

Q3. According to current estimates, approximately how many species have been described and named on Earth?

- (A) 87 lakh
- (B) 50 thousand
- (C) 17.5 lakh
- (D) 1 crore

Q4. Consciousness in living organisms is defined as

- (A) Ability to think and reason
- (B) Capacity for locomotion
- (C) Ability to learn from past experience
- (D) Awareness of and response to environmental stimuli

Q5. According to NCERT, which property is considered the most defining characteristic of living organisms?

- (A) Growth
- (B) Metabolism
- (C) Reproduction
- (D) Locomotion

Q6. Metabolism refers to the sum total of

- (A) Only energy-releasing reactions in the cell
- (B) Only biosynthetic reactions in the cell
- (C) All chemical reactions occurring in the body
- (D) Only respiratory reactions in mitochondria

Q7. An endemic species is defined as one that

- (A) Is naturally restricted to a specific geographical area and found nowhere else
- (B) Is found across multiple continents
- (C) Has been introduced to a new region by humans
- (D) Has a very large global population

Q8. Endemic species are disproportionately vulnerable to extinction because

- (A) Their restricted geographic range means any local habitat destruction eliminates the entire global population
- (B) They reproduce at slower rates than widespread species
- (C) They are always smaller in body size
- (D) They lack the ability to adapt to any environmental change

Q9. High endemism in the Western Ghats compared to the Indo-Gangetic plains is primarily due to

- (A) Higher annual rainfall in the Western Ghats
- (B) Lower human population in the Western Ghats
- (C) Government protection of Western Ghats forests
- (D) Long geological isolation, diverse microclimates, and uninterrupted evolutionary history

Q10. Understanding global biodiversity patterns is most critical for

- (A) Maximising agricultural productivity in all biomes
- (B) Eliminating invasive species from all ecosystems
- (C) Preventing all forms of species migration
- (D) Identifying regions that require urgent conservation priority based on richness and threat level

Q11. Norman Myers originally proposed the concept of biodiversity hotspots to address

- (A) The need to increase agricultural productivity in biodiverse regions
- (B) The need to prioritise limited conservation resources toward regions with maximum biodiversity under maximum threat
- (C) The importance of ex-situ conservation over in-situ conservation
- (D) The role of governments in funding species surveys

Q12. Ecosystem diversity refers to

- (A) The number of species found in an ecosystem
- (B) The genetic variation within populations of an ecosystem
- (C) The population density across different biomes
- (D) The variety of habitats, communities, and ecological processes in a region

Q13. The correct ascending taxonomic hierarchy is

- (A) Genus → Species → Family → Order → Class → Phylum → Kingdom
- (B) Kingdom → Phylum → Class → Order → Family → Genus → Species
- (C) Species → Genus → Family → Order → Class → Phylum → Kingdom
- (D) Species → Family → Genus → Class → Order → Phylum → Kingdom

Q14. Family Felidae is correctly described as the family containing

- (A) All members of genus Panthera, Felis, Acinonyx, and other cat genera
- (B) Lions, tigers, and wolves — all large predatory mammals
- (C) Domestic cats only, excluding wild cat species
- (D) Cats and dogs — all common domestic animals

Q15. Which of the following pairs belongs to the same genus?

- (A) Panthera leo and Felis catus
- (B) Homo sapiens and Pan troglodytes
- (C) Panthera leo and Panthera tigris
- (D) Canis lupus and Vulpes vulpes

Q16. As one ascends from species to kingdom in the taxonomic hierarchy

- (A) The number of shared characteristics increases while diversity decreases
- (B) Both similarity and diversity increase simultaneously
- (C) The number of organisms decreases while similarity increases
- (D) The number of shared characteristics decreases while the number of included organisms increases

Q17. If two organisms belong to the same genus, which of the following categories must they ALSO share?

- (A) Family, Order, Class, Phylum, and Kingdom
- (B) Species only
- (C) Only Kingdom and Phylum
- (D) Only Kingdom

Q18. The taxonomic category directly above species in the hierarchy is

- (A) Family
- (B) Genus
- (C) Order
- (D) Class

Q19. Which of the following taxonomical aids is most useful for studying preserved animal specimens?

- (A) Museum
- (B) Herbarium
- (C) Zoological park
- (D) Taxonomic key

Q20. Herbaria serve as important tools for future reference because

- (A) They maintain living plants that can be observed at any time
- (B) They contain identification keys for all plant species
- (C) Dried specimens can be preserved for hundreds of years and serve as permanent voucher records
- (D) They are updated annually with newly discovered species photographs

Q21. In a herbarium, the 'type specimen' refers to

- (A) The most commonly found specimen of a species in a region
- (B) The largest and best-preserved specimen in the collection
- (C) The specimen collected most recently for a species
- (D) The original specimen used by the author to formally describe and name a species

Q22. Which taxonomical aid is specifically designed to provide stepwise identification of an unknown organism using contrasting morphological characters?

- (A) Taxonomic key
- (B) Herbarium sheet
- (C) Museum register
- (D) Monograph

Q23. A monograph differs from a Flora primarily in that a monograph

- (A) Covers all plants of a geographical region
- (B) Is used for field identification in a specific area
- (C) Lists species in alphabetical order only
- (D) Provides a comprehensive account of a single taxonomic group across its entire global distribution

Q24. The primary purpose of taxonomical aids is to

- (A) Facilitate identification and classification of organisms
- (B) Study physiological processes in organisms
- (C) Analyse ecological relationships
- (D) Trace evolutionary history of species

Answer key and explanations

Q1. Answer: (A) Homeostasis

Homeostasis is the self-regulating process that maintains optimal internal conditions. Adaptation is a long-term evolutionary change; acclimatisation is short-term physiological adjustment.

Q2. Answer: (A) State of reduced but not absent metabolic activity

Dormant organisms (e.g., seeds, spores) retain minimal metabolic activity and remain alive. Metabolism is reduced, not absent — distinguishing dormancy from death.

Q3. Answer: (C) 17.5 lakh

NCERT states approximately 1.7–1.8 million (17–18 lakh) species have been described so far, while estimated total biodiversity is much higher (~8.7 million). 17.5 lakh is the closest correct figure.

Q4. Answer: (D) Awareness of and response to environmental stimuli

Per NCERT, consciousness means the ability to sense the environment and respond to stimuli. This is the broadest definition applicable to all living organisms, from bacteria to humans.

Q5. Answer: (B) Metabolism

NCERT explicitly states that metabolism is the most defining feature of living organisms. It is the only property with NO exceptions — every living cell performs metabolism, and no non-living system does so naturally.

Q6. Answer: (C) All chemical reactions occurring in the body

Metabolism includes both anabolism (biosynthesis) and catabolism (breakdown). Restricting it to only one type is incorrect per NCERT.

Q7. Answer: (A) Is naturally restricted to a specific geographical area and found nowhere else

Endemic species are geographically restricted — they evolved in and are confined to a specific region. Loss of that region means global extinction of the species, making endemics conservation priorities.

Q8. Answer: (A) Their restricted geographic range means any local habitat destruction eliminates the entire global population

Restricted range = no refuge elsewhere. A single catastrophic event (deforestation, disease, climate shift) in their only habitat causes global extinction. Widespread species can survive local extinctions through immigration from other populations.

Q9. Answer: (D) Long geological isolation, diverse microclimates, and uninterrupted evolutionary history

The Western Ghats has been geologically isolated for millions of years, creating diverse microclimates that drove speciation. The Indo-Gangetic plains are flat, geologically young, and lack such isolation — resulting in far lower endemism.

Q10. Answer: (D) Identifying regions that require urgent conservation priority based on richness and threat level

Mapping biodiversity patterns allows scientists to identify hotspots — regions with high endemism under severe threat — enabling targeted, efficient conservation resource allocation. This is the primary applied value of biodiversity pattern studies.

Q11. Answer: (B) The need to prioritise limited conservation resources toward regions with maximum biodiversity under maximum threat

Norman Myers (1988, 2000) identified hotspots as a strategy to focus conservation investment where it would have the greatest impact — regions with irreplaceable endemic species facing severe habitat loss. This is the foundational rationale behind the hotspot concept.

Q12. Answer: (D) The variety of habitats, communities, and ecological processes in a region

Ecosystem diversity includes the variety of different habitats (forests, wetlands, deserts, grasslands) and the ecological processes operating within them — distinct from species or genetic diversity.

Q13. Answer: (C) Species → Genus → Family → Order → Class → Phylum → Kingdom

The seven obligate taxonomic categories in ascending order: Species → Genus → Family → Order → Class → Phylum (Division in plants) → Kingdom. This sequence — and its reverse — is one of the most frequently tested NEET items from this chapter.

Q14. Answer: (A) All members of genus Panthera, Felis, Acinonyx, and other cat genera

Felidae (family of cats) includes all cat genera: Panthera (lions, tigers, leopards, jaguars), Felis (domestic cat, wildcat), Acinonyx (cheetah), Lynx, and others. Wolves and dogs belong to Canidae — a different family within Order Carnivora.

Q15. Answer: (C) Panthera leo and Panthera tigris

Panthera leo (lion) and Panthera tigris (tiger) share genus Panthera. Felis catus (domestic cat) is a different genus. Pan troglodytes (chimpanzee) is a different genus from Homo. Canis lupus (wolf) and Vulpes vulpes (red fox) are different genera — Canis vs Vulpes.

Q16. Answer: (D) The number of shared characteristics decreases while the number of included organisms increases

Moving upward in the hierarchy: each higher category is more inclusive (contains more organisms) but members share fewer characteristics. Kingdom Animalia contains millions of species with only a few shared features; a species contains individuals sharing nearly all features.

Q17. Answer: (A) Family, Order, Class, Phylum, and Kingdom

The taxonomic hierarchy is nested — every genus belongs to exactly one family, which belongs to one order, class, phylum, and kingdom. Sharing a genus guarantees sharing all higher categories. However, same genus does NOT mean same species — a genus can contain multiple species.

Q18. Answer: (B) Genus

Genus (plural: genera) is the category immediately above species. A genus groups closely related species that share a common ancestor and significant morphological and genetic similarities. The first word of a binomial name is always the genus name.

Q19. Answer: (A) Museum

Museums store specimens of animals and plants preserved in fluid (alcohol or formalin) or as dry specimens. Zoological parks maintain living animals. Herbaria preserve plants only. Keys are identification tools, not preservation systems.

Q20. Answer: (C) Dried specimens can be preserved for hundreds of years and serve as permanent voucher records

Herbarium sheets, when properly maintained, can preserve plant specimens for centuries. They act as permanent records (voucher specimens) that researchers can re-examine to verify identifications. Living plants cannot be indefinitely preserved; photographs alone are insufficient as taxonomical records.

Q21. Answer: (D) The original specimen used by the author to formally describe and name a species

A type specimen is the single reference specimen upon which the original formal description and naming of a species is based. All future identifications of that species are compared against it. It has permanent legal standing in nomenclature under ICBN/ICZN.

Q22. Answer: (A) Taxonomic key

Taxonomic keys work through a series of couplets — pairs of contrasting statements — that lead the user step by step to the identity of an organism. Herbaria and museums store specimens. Monographs provide detailed accounts of taxa but are not identification tools.

Q23. Answer: (D) Provides a comprehensive account of a single taxonomic group across its entire global distribution

A monograph is an in-depth, authoritative treatment of one taxonomic group (a genus, family, or order) covering its worldwide distribution, morphology, taxonomy, and literature. A Flora covers all plant species of one region but is not restricted to one taxon. This distinction — one taxon globally vs. all taxa regionally — is a frequent NEET-level trap.

Q24. Answer: (A) Facilitate identification and classification of organisms

Taxonomical aids are tools and techniques that help in identification, nomenclature, and classification of organisms. They do not directly study physiology, ecology, or evolution.

Taxonomic hierarchy: four organisms to remember

Organism	Genus · Family · Order · Class · Phylum/Division
Man (Homo sapiens)	Homo · Hominidae · Primata · Mammalia · Chordata

Housefly (<i>Musca domestica</i>)	Musca · Muscidae · Diptera · Insecta · Arthropoda
Mango (<i>Mangifera indica</i>)	Mangifera · Anacardiaceae · Sapindales · Dicotyledonae · Angiospermae
Wheat (<i>Triticum aestivum</i>)	Triticum · Poaceae · Poales · Monocotyledonae · Angiospermae
Binomial nomenclature	Proposed by Carolus Linnaeus: genus name starts with a capital letter, species epithet with a small letter, both italicised (or underlined separately when handwritten)
Species described so far	About 1.7–1.8 million
Herbarium	Dried, pressed and preserved plant specimens on sheets
Taxonomic key	Identification using pairs of contrasting characters (couplets)
Monograph	Information on any one taxon