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Answers Key:

3 Marks

1.

Cat	-	Felis catus
Rose	-	Rosa indica
Sparrow	-	Passer domestica

2. Taxonomical aids are helpful in various fields such as agriculture, forestry, industry and in knowing our bioresources.
All the above-mentioned studies need correct identification and classification of organisms. Identification of organisms requires intensive laboratory and field studies.
Biologists use herbarium, botanical gardens, museum, zoological parks, and taxonomical keys while doing taxonomical studies.
3. All the activities like growth, reproduction, movements, responsiveness, development, etc., are due to metabolism.
Metabolism is of two types, i.e., anabolism and catabolism. Anabolism involves the synthesis of complex compounds from simpler ones, e.g., photosynthesis and catabolism involves the breakdown of complex compounds into simpler substances, e.g., respiration.
4. The category is a part of overall taxonomic arrangement called taxonomic category. All the categories together constitute the taxonomic hierarchy.
A - Phylum, B - Order, C - Family and D - Species
5.

Related Animals	Common Characters
Human and Chimpanzee	Similar structure of skull, upright walking, digits can be used for manipulating objects
Cat and Tiger	Similar body architecture, eating habit, Presence of strong canine teeth
Rabits and Mouse	Similar body architecture, incisor teeth keep on growing,both can dig burroughs
Crocodiles and Lizards	Crawling animals, rough skin, oviparous
Additional comments	All are having four limbs for locomotion

6. **Similar characters of cockroach and mentis :**
(a) Joined appendages.
(b) Body divided into head, thorax and abdomen
(c) Presence of compound eyes
(d) Exoskeleton made of chitin
(e) Wings made of chitin.
7. A label on the herbarium sheet must have the following information:
(i) Localityl Place (Habitat)
(ii) Name of the collector
(iii) Date and time of collection
(iv) Common English name
(v) Vernacular name
(vi) Scientific name with the author's name
(vii) Name of the family.
8. (a) The first part is the generic name and the second part is the specific name.
(b) Linn indicates Linnaeus, who had first described this species.
(c) Because they are in Latin.
9. Binomial nomenclature was first developed by Carolus Linnaeus in 1751(Philosphica Botanica). All scientific names for animals under binomial nomenclature were given by Linnaeus in the tenth edition of his book Systema Naturae (1758). Linnaeus named plants according to binomial nomenclature in his book Species Plantarun (1753).
Binomial nomenclature is the system of providing distinct and appropriate names to organisms, each consisting of first generic name (i.e. name of genus) and second specific epithet (i.e. name of species). e.g, scientific name of mango is written as Mangifera indica. In this name, Mangifera represents the genus and indica is a particular species or specific epithet.
10.

Common name	Scientific name	Species	Genus	Family	Order	Class	Phylum (Division)	Kingdom
Housefly	Musca domestica	domestica	Musca	Muscidae	Diptera	Insecta	Arthropoda	Animalia
Mango	Mangifera indica	indica	Mangifera	Anacardiaceae	Sapindales	Dicotyledonae	Angiospermae	Plantae
Man	Homo sapiens	sapiens	Homo	Hominidae	Primata	Mammalia	Chordata	Animalia
Tulsi	Ocimum sanctum	sanctum	Ocimum	Lamiaccae	Lamiales	Dicotyledonae	Angiospermae	Plantae

2 Marks

11. (i) Filamentous algae
(ii) Peritonea of mosses
12. The sum total of all chemical reactions occurring in an organism due to specific interactions amongst different types of molecules within the cells, is called metabolism.

13. In plants, growth continues throughout the life as they have meristematic regions, where the cell division occurs continuously. In animals, growth occurs only upto a certain age, after which cells divide only to replace worn out and lost cells.

14.

Fungi	-	Asexual spores
Planaria	-	Regeneration
Amoeba	-	Cell division
Hydra	-	Budding

15. The organisation in a living body produces a new functional entity, which has its own properties not found in its components. Hence, a cell organelle is the one having its own properties not found in its molecular constituents.
16. There are many organisms, which never reproduce in their life, although all other characteristic of living things are present in them, e.g., sterile worker bees, mules, infertile human couples, etc., Hence, reproduction cannot be an all-inclusive defining property of living things.
17. We should call it biodiversity or biological diversity as it shows variety of living organisms present on earth.
18. Scope of systematics is
    (i) Identification of organisms
    (ii) nomenclature of existing and new organisms
    (iii) classification of new organisms
    (iv) concluding evolutionary relationships between different organisms
    Systema Naturae is the publication of Linnaeus.
19. Few nomenclature Codes are
    (i) International Code of Botanical Nomenclature (ICBN)
    (ii) International Code of Zoological Nomenclature (ICZN)
    (iii) International Code of Viral Nomenclature (ICVN)
    (iv) International Code of Bacteriological Nomenclature (ICBN)
20. The knowledge of the characteristics of an individual or its whole population helps in the identification of similarities and dissimilarities among individuals of the same kind or between different types of organisms. ex

Genus	Species
Solanum	tuberosum
Solanum	nigrum

    Both are two different species included in genus Solanum.
21. (i) Solanum tuberosum (potato), Solanum melongena (brinjal).
    (ii) Panthera leo (lion), Panthera pardus (leopard).
22. Botanists use binomial nomenclature to solve this problem.A scientific name is given to the plant based on certain principles and criteria.The scientific name of a particular plant is same all over the world and is not given to any other plant.
23. Species is the lowest of a population or basic taxonomic category which consists of one or more individuals that resemble one another more closely than individuals of other species.
    The members of a species interbreed freely and are reproductively isolated from members of other species. These features make the species basic taxonomic category.
24. Kingdom, Phylum, Class, Order, Family, Genus and Species.
25. Plants and their parts are dried up to be preserved and they are kept in herbariums for future reference.
26. A geographical location rich in biodiversity would have a healthier ecosystem. A rich biodiversity helps maintain the ecological balance as well.
27. A key is a set of two contrasting characters out of which either of the characters is carried over to future generations for better adaptability. These keys help scientists establish the link and path towards development of a particular taxonomic category.
28. (a) **ICBN :** International Code for Botanical Nomenclature.
    (b) **ICZN :** International Code of Zoological Nomenclature has developed a system for identifying and classifying the animals.
29. Plants and animals are named differently in different parts of the world.In order to avoid confusion it is universally accepted to name plants and animals in latin.
30. Taxonomic hierarchy is the framework in which the taxonomic groups (taxa) are arranged in a definite order, from higher to lower categories.

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