

Get Ready to Crack CSIR-NET 2021 (Most Important Questions Diversity of Life Forms



1. Rearrange the following terms in taxonomic in correct hierarchical order.

- A) Kingdom-Phylum- class- order-family
- B) Phylum- kingdom-class- family-order
- C) class-order-kingdom-phylum-family
- D) phylum-class-order-family-kingdom

2. Taxonomy is the theory and practice of classifying organisms, 3 levels of taxonomy, the alpha taxonomy mainly deals with

- A) Analytic phase in which the species are identified, characterized and named.
- B) Refers to the arrangement of the species into a natural system of hierarchical categories.
- C) The analysis of intraspecific variations and evolutionary studies.
- D) Refers to the classification of birds and insects of order Lepidoptera.

3. Bipolar embryo sac, 8 nucleate, bisporic is the characteristic feature of which of the following plants?

- A) Peperomia
- B) Allium sativum
- C) Evening primrose
- D) Knotweed

4. The study of the periodic plant and animal life cycle, recurring biological events, the causes of their timing with regard to biotic and abiotic forces is called

- A) Phylogeny
- B) Paleontology
- C) Ethology
- D) Phenology

5. Seedless vascular plants with well-developed cuticles is a characteristic feature of which of the following

- A) Thallophyta
- B) Bryophyta
- C) Pteridophyta
- D) Gymnospermae

6. Gymnosperms are fruitless plants, which of the plant is an example of gymnosperms

- A) Gnetophytae
- B) Orchidaceae
- C) Euphorbiaceae
- D) Fabaceae

7. Tube feet are found in

- A) Phylum Chordata
- B) Phylum Echinodermata
- C) Phylum Mollusca
- D) Phylum Annelida

8. The following are the important characteristics of the phylum that identify the incorrect match

- A) Spiny skinned triploblastic organisms – Phylum Echinodermata
- B) Body cavity full of haemolymph and uses green glands for excretion – Phylum Arthropoda
- C) Body cavity is true coelom segmental nephridia for excretion – Phylum Annelida
- D) Radially symmetrical and show alteration of generation – Phylum Porifera

9. Which of the following statement/ statements is true about ascomycetes

- P. They are mainly diploid
- Q. Lack dikaryotic phase
- R. Produce sexual spores in the ascus
- S. Presence of gills on mycelium

- A) P,Q
- B) P,R,S
- C) R only
- D) P,S

10. Ontogeny recapitulates phylogeny i.e., an organism, in the course of its development, goes through the same successive stages, which among the following is explained this theory?

- A) Theory of biogenesis
- B) Theory of natural selection
- C) Theory of recapitulation

D) Theory of spontaneous generation

Answers:

1. A

6. A

2. A

7. B

3. B

8. D

4. D

9. C

5. C

10. C

Solution :

1. A hierarchical system is used to classify organisms to species level. Kingdom is the largest unit of classification, it is split into smaller units called phyla, phyla into classes, classes into order and so on.
2. Alpha taxonomy includes species descriptions, taxonomic keys and diagnosis. Beta taxonomy refers to the arrangement of the species into a natural system of hierarchical categories. Gamma taxonomy designates analysis of intraspecific variations and evolutionary studies.
3. Bisporic embryo sac: In this type of embryo sac, two megaspores take part in the formation of the embryo sac. The nucleus of two megaspores undergo two mitotic divisions and the resulting embryo sac is 8 nucleate. Bisporic bimitotic embryo sacs are idealized as the Allium-type.
4. Phenology is the study of periodic events in biological life cycles and how these are influenced by seasonal and interannual variations in climate, as well as habitat factors.
5. Pteridophytes are seedless vascular plants with well-developed cuticles to minimise water loss. They also have stomata to allow a gas exchange for photosynthesis.
6. Gymnosperms produce naked seeds and are called fruitless plants. Examples of gymnosperms are conifers, Ginkgo, Gnetophytae etc. They mostly lack xylem vessels except for Gnetophytae
7. Phylum Echinodermata have developed tube feet for locomotion, food capture, respiration. The tube feet generally protrude out through special radial areas called the ambulacral systems. They are extended and retracted by variations in hydraulic pressure of fluid in them and by contractions of their muscles.
8. Radially symmetrical and show alternation of generation are shown by phylum cnidarian, not phylum Porifera. Examples of cnidarians are Physalia, Aurelia, sea anemones. Porifera have only ectoderm and endoderm and are diploblastic eg: sponges.
9. Ascomycota is the largest phylum of the kingdom fungi and has around 64000 species. They come under the sub-kingdom Dikarya (presence of dikaryon). Asexual reproduction is by the formation of conidia exogenously on conidiophores. Sexual

reproduction is by conjugation between two gametangia. They are either homothallic or heterothallic. Eg: *Saccharomyces*

10. The theory of recapitulation, also called the biogenetic law or embryological parallelism often expressed using Ernst Haeckel's phrase "ontogeny recapitulates phylogeny" is a historical hypothesis that the development of the embryo of an animal, from fertilization to gestation or hatching (ontogeny), goes through stages resembling or representing successive adult stages in the evolution of the animal's remote ancestors (phylogeny). It was formulated in the 1820s by Étienne Serres based on the work of Johann Friedrich Meckel, after whom it is also known as **Meckel–Serres law**.

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