CBT AUGUST 2023-24
CLASS – XI : BIOLOGY
Answer key with explanation

Q1.) The earliest systems of classification used only gross superficial morphological characters (system given by Linnaeus). Such systems were artificial; they separated the closely related species since they were based on a few characteristics. Also, the artificial systems gave equal weightage to vegetative and sexual characteristics; this is not acceptable since we know that often the vegetative characters are more easily affected by environment. As against this, natural classification systems developed, which were based on natural affinities among the organisms and consider, not only the external features, but also internal features. At present phylogenetic classification systems based on evolutionary relationships between the various organisms are acceptable. At present phylogenetic classification systems based on evolutionary relationships between the various organisms are acceptable. We now use information from many other sources too to help resolve difficulties in classification. These become more important when there is no supporting fossil evidence. Numerical Taxonomy which is now easily carried out using computers is based on all observable characteristics. Number and codes are assigned to all the characters and the data are then processed. In this way each character is given equal importance and at the same time hundreds of characters can be considered. Cytotaxonomy that is based on cytological information like chromosome number, structure, behaviour and chemotaxonomy that uses the chemical constituents of the plant to resolve confusions, are also used by taxonomists these days.

1) **In phylogenetic system of classification, it is believed that organisms belongs to the same taxa have**

_____

a) Common character
b) Common ancestor
c) Differentcharacter
d) All of the above

Ans b Common ancestor

group of living organisms consisting of similar individuals capable of exchanging genes or interbreeding is called species. They are usually described in terms of their characteristics so that organisms which have a lot of similarities are grouped as the same species. It not necessary that the organism from the same taxa have common ancestors.
So the correct option is ' Organisms belonging to the same taxa have common ancestors'.

2.) Linnaeus, gave the earliest artificial system of classification systems which was based on ?

(a) Ultra-structure
(b) Embryology
(c) Androecium structure
(d) Anatomy

Ans. c) Androecium structure

The artificial system of classification uses one or two morphological characters for grouping of organisms. The artificial system of classification put forward by Linnaeus classified organisms on the basis numerical strength of sex organs like androecium number i flower of a plant. In this system, phylogenetic or evolutionary relationships between organisms were not considered. It also did not take into account differences at cellular levels like DNA and proteins found in different organisms.

3.) Numerical taxonomy was given by ?

(a) Benthem and Hooker

(b) Linnaeus
(c) R.H. Whittaker
(d) Deiner
Ans. a) Benthem and Hooker
(e) FEEDBACK : R.H. Whittaker
Carl Linnaeus is most famous for binomial system, Whittaker was the first to propose the five kingdom taxonomic classification of the world's biota into the Animalia, Plantae, Fungi, Protista, and Monera in 1969, Theodor O. Diener, the Agricultural Research Service plant pathologist who discovered the pathogen, named it the “viroid,” because it is “like a virus.”

4.) Phytochemistry is considered in which type of classification system?
(a) Phylogenetic classification
(b) Cytotaxonomy
(c) Natural classification
(d) Artificial systems

Ans
(c) Natural classification
FEEDBACK : **Natural system of classification consider external and internal features, ultrastructure,anatomy,embryology and phytochemistry.**

Q2.) Though all members of Animalia are multicellular, all of them do not exhibit the same pattern of organisation of cells. For example, in sponges, the cells are arranged as loose cell aggregates, i.e., they exhibit cellular level of organisation. Some division of labour (activities) occur among the cells. In coelenterates, the arrangement of cells is more complex arrangement here is called tissue level of organisation. A still higher level of organisation, i.e., organ level is exhibited by members of Platyhelminthes and other higher phyla where tissues are grouped together to form organs, each specialised for a particular function. In animals like Annelids, Arthropods, Molluscs, Echinoderms and Chordates, the pattern is called organ system level of organisation. Organ systems in different groups of animals exhibit various patterns of complexities. For example, the digestive system in Platyhelminthes has only a single opening to the outside of the body that serves as both mouth and anus, and is hence called incomplete. A complete digestive system has two openings, mouth and anus. Similarly, the circulatory system may be of two types: (i) open type in which the blood is pumped out of the heart and the cells and tissues are directly bathed in it and (ii) closed type in which the blood is circulated through a series of vessels of varying diameters (arteries, veins and capillaries). Symmetry – Animals can be categorised on the basis of their symmetry. Sponges are mostly asymmetrical, i.e., any plane that passes through the centre does not divide them into equal halves. When any plane passing through the central axis of the body divides the organism into two identical halves, it is called radial symmetry. when the body can be divided into identical left and right halves in only one plane, exhibit bilateral symmetry.

1) **When two or more organs work together to perform a specific function, this pattern is called is termed as**

_____.
a) Cellular Level of Organisation
b) Tissue Level of Organisation
c) Organ Level of Organisation
d) Organ System Level of Organisation
Ans.
d) Organ System Level of Organisation
FEEDBACK : **A group of organs working together to perform a specific function is called an organ system. An example of an organ system is the circulatory system, which includes different organs like the heart, arteries, veins, and capillaries.**

2.) Identify the correct statement

Statement 1 – In Organ System Level of Organisation each system concerned with same physiological function.

Statement 2 – In tissue level of organization each cells performing the same function arranged into tissue

Statement 3 – In tissue level of organization each cells performing the different function arranged into tissue

Statement 4 – in Organ System Level of Organisation each system concerned with specific physiological function.

a.) Statement 1 and 2 is correct

b) Statement 3 and 4 iscorrect

c) Statement 2 and 4 iscorrect

d) Statement 3 and 4 iscorrect

Ans c) Statement 2 and 4 is correct

FEEDBACK : **At the tissue level of organization, all such cells performing similar functions group together to form a unit called tissue.**

In animals like annelids, organs have associated to form functional systems, each system concerned with a specific physiological function. This pattern is called organ system level of organisation.

3.) Choose the odd one out w.r.t. radial symmetry ?

a) Coelenterates

b) Ctenophores

c) Echinoderms

d) Arthropods

Ans d .Arthropods

FEEDBACK : Radial symmetry is the arrangement of body parts in which an organism can be divided into two equal halves in any plane from the central axis. Porifera are asymmetrical animals.

Coelenterates are radially symmetrical.

Platyhelminthes, arthropods, and molluscans animals are bilaterally symmetrical. Adult Echinodermata animals are also radially symmetrical.

4.) Which of the following have complete digestive system?

a) Locusta

b) Gorgonia

c) Pleurobrachia

d) Fasciola

Ans d fasciola

FEEDBACK : **Other options have incomplete digestive system. Fasciola haptica has an incomplete alimentary canal as it lack the anus. Mouth is situated at the anterior and surrounded by oral sucker. It also consists of muscular pharynx, oesophagus, intestine, caeca and excretory pore.**