
Diversity in Living Organisms

Multiple Choice Questions

1. Find out incorrect sentence

- (a) Protista includes unicellular eukaryotic organisms
- (b) Whittaker considered cell structure, mode and source of nutrition for classifying the organisms in five kingdoms
- (c) Both Monera and Protista may be autotrophic and heterotrophic
- (d) Monerans have well defined nucleus

Ans. (d) Monerans have well defined nucleus

Explanation: Monerans are prokaryotes, i.e., they do not have well defined nucleus.

2. Which among the following has specialised tissue for conduction of water?

- (i) Thallophyta
- (ii) Bryophyta
- (iii) Pteridophyta
- (iv) Gymnosperms
- (a) (i) and (ii)
- (b) (ii) and (iii)
- (c) (iii) and (iv)
- (d) (i) and (iv)

Ans. (c) (iii) and (iv)

Explanation: Specialised conductive tissues are not found in thallophyta and bryophyte. They first appear in pteridophyta.

3. Which among the following produce seeds?

- (a) Thallophyta
- (b) Bryophyta
- (c) Pteridophyta
- (d) Gymnosperms

Ans. (d) Gymnosperms

Explanation: Gymnosperms and angiosperms are seed bearing plants, but plants of lower groups do not bear seeds.

4. Which one is a true fish?

- (a) Jellyfish
- (b) Starfish
- (c) Dogfish
- (d) Silverfish

Ans. (c) Dogfish

Explanation: Dogfish is cartilaginous fish. Jellyfish is a coelenterate, starfish belongs to Echinodermata and silverfish is an insect.

5. Which among the following is exclusively marine?

-
- (a) Porifera
 - (b) Echinodermata
 - (c) Mollusca
 - (d) Pisces

Ans. (b) Echinodermata

Explanation: Porifera, Mollusca and pisces are found in freshwater also.

6. Which among the following have open circulatory system?

- (i) Arthropoda
- (ii) Mollusca
- (iii) Annelida
- (iv) Coelenterata
- (a) (i) and (ii)
- (b) (iii) and (iv)
- (c) (i) and (iii)
- (d) (ii) and (iv)

Ans. (a) (i) and (ii)

7. In which group of animals, coelom is filled with blood?

- (a) Arthropoda
- (b) Annelida
- (c) Nematoda
- (d) Echinodermata

Ans. (a) Arthropoda

Explanation: Blood is not present in other groups in the options.

8. Elephantiasis is caused by

- (a) Wuchereria
- (b) Pinworm
- (c) Planarians
- (d) Liver flukes

Ans. (a) Wuchereria

9. Which one is the most striking or (common) character of the vertebrates?

- (a) Presence of notochord
- (b) Presence of triploblastic condition
- (c) Presence of gill pouches
- (d) Presence of coelom

Ans. (a) Presence of notochord

Explanation: Triploblastic condition, gill pouches and coelom are present in many non-vertebrates as well.

10. Which among the following have scales?

- (i) Amphibians
 - (ii) Pisces
-

-
- (iii) Reptiles
 - (iv) Mammals
 - (a) (i) and (iii)
 - (b) (iii) and (iv)
 - (c) (ii) and (iii)
 - (d) (i) and (ii)

Ans. (c) (ii) and (iii)

Explanation: Amphibians and mammals do not have scales on their body.

11. Find out the false statement

- (a) Aves are warm blooded, egg laying and have four chambered heart
- (b) Aves have feather covered body, fore limbs are modified as wing and breathe through lungs
- (c) Most of the mammals are viviparous
- (d) Fishes, amphibians and reptiles are oviparous

Ans. (d) Fishes, amphibians and reptiles are oviparous

Explanation: Some fishes and reptiles are viviparous. Amphibians show external fertilization and hence cannot be kept under either oviparous or viviparous animals.

12. Pteridophyta do not have

- (a) root
- (b) stem
- (c) flowers
- (d) leaves

Ans. (c) flowers

Explanation: Flower are present only in angiosperms.

13. Identify a member of porifera

- (a) Spongilla
- (b) Euglena
- (c) Penicillium
- (d) Hydra

Ans. (a) Spongilla

Explanation: Euglena belongs to protozoa, Penicillium belongs to fungi and Hydra belongs to coelenterata.

14. Which is not an aquatic animal?

- (a) Hydra
- (b) Jelly fish
- (c) Corals
- (d) Filaria

Ans. (d) Filaria

Explanation: Filaria is a disease which happens because of Wuchereria.

15. Amphibians do not have the following

-
- (a) Three chambered heart
 - (b) Gills or lungs
 - (c) Scales
 - (d) Mucus glands

Ans. (c) Scales

Explanation: Three chambered heart is found in amphibians. Lungs are present in adults and gills are present in tadpoles. Mucus gland is present on skin of amphibians.

16. Organisms without nucleus and cell organelles belong to

- (i) fungi
- (ii) protista
- (iii) Cyanobacteria
- (iv) archaebacteria
- (a) (i) and (ii)
- (b) (iii) and (iv)
- (c) (i) and (iv)
- (d) (ii) and (iii)

Ans. (b) (iii) and (iv)

Explanation: Prokaryotes belong to monera and cyanobacteria and archaebacteria belong to monera.

17. Which of the following is not a criterion for classification of living organisms?

- (a) Body design of the organism
- (b) Ability to produce one's own food
- (c) Membrane bound nucleus and cell organelles
- (d) Height of the plant

Ans. (d) Height of the plant

Explanation: A small shrub and a large tree; both belong to angiosperms. This shows that heights of a plant cannot be a criterion for classification.

18. The feature that is not a characteristic of protochordata?

- (a) Presence of notochord
- (b) Bilateral symmetry and coelom
- (c) Jointed legs
- (d) Presence of circulatory system

Ans. (c) Jointed legs

Explanation: jointed legs are found in arthropoda; which does not belong to chordata.

19. The locomotory organs of Echinodermata are

- (a) tube feet
- (b) muscular feet
- (c) jointed legs
- (d) parapodia

Ans. (a) tube feet

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- 20. Corals are**
(a) Poriferans attached to some solid support
(b) Cnidarians, that are solitary living
(c) Poriferans present at the sea bed
(d) Cnidarians that live-in colonies

Ans. (d) Cnidarians that live-in colonies

- 21. Who introduced the system of scientific nomenclature of organisms**

- (a) Robert Whittaker
(b) Carolus Linnaeus
(c) Robert Hooke
(d) Ernst Haeckel

Ans. (b) Carolus Linnaeus

Explanation: It was Carolus Linnaeus who proposed binomial nomenclature of organisms.

- 22. Two chambered heart occurs in**

- (a) crocodiles
(b) fish
(c) aves
(d) amphibians

Ans. (b) fish

Explanation: Amphibians have three-chambered heart. Crocodiles and aves have four-chambered heart.

- 23. Skeleton is made entirely of cartilage in**

- (a) Sharks
(b) Tuna
(c) Rohu
(d) None of these

Ans. (a) Sharks

Explanation: Sharks belong to cartilaginous fish; while others belong to bony fish.

- 24. One of the following is not an Annelid**

- (a) Nereis
(b) Earthworm
(c) Leech
(d) Urchins

Ans. (d) Urchins

Explanation: Sea urchins belong to coelenterate.

- 25. The book Systema Naturae was written by**

- (a) Linnaeus
(b) Haeckel
(c) Whittaker
-

(d) Robert Brown

Ans. (a) Linnaeus

26. Karl Von Linne was involved with which branch of science?

(a) Morphology

(b) Taxonomy

(c) Physiology

(d) Medicine

Ans. (b) Taxonomy

27. Real organs are absent in

(a) Mollusca

(b) Coelenterata

(c) Arthropoda

(d) Echinodermata

Ans. (b) Coelenterata

Explanation: Coelenterates show tissue level of organization and hence real organs are absent in them.

28. Hard calcium carbonate structures are used as skeleton by

(a) Echinodermata

(b) Protochordata

(c) Arthropoda

(d) Nematoda

Ans. (a) Echinodermata

29. Differentiation in segmental fashion occurs in

(a) Leech

(b) Starfish

(c) Snails

(d) Ascaris

Ans. (a) Leech

Explanation: Leech belongs to annelida which show segmentation in body.

30. In taxonomic hierarchy family comes between

(a) Class and Order

(b) Order and Genus

(c) Genus and Species

(d) Division and Class

Ans. (b) Order and Genus

Explanation: The sequence is: Division → Class → Order → Family → Genus → Species.

31. 5-Kingdom classification has given by

(a) Morgan

(b) R. Whittaker

(c) Linnaeus

(d) Haeckel

Ans. (b) R. Whittaker

32. Well defined nucleus is absent in

(a) blue green algae

(b) diatoms

(c) algae

(d) yeast

Ans. (a) blue green algae

Explanation: Blue green algae belong to monera which are prokaryotes and hence well-defined nucleus is absent in them.

33. The 'Origin of Species' is written by

(a) Linnaeus

(b) Darwin

(c) Haeckel

(d) Whittaker

Ans. (b) Darwin

34. Meena and Hari observed an animal in their garden. Hari called it an insect while Meena said it was an earthworm. Choose the character from the following which confirms that it is an insect.

(a) Bilateral symmetrical body

(b) Body with jointed legs

(c) Cylindrical body

(d) Body with little segmentation

Ans. (b) Body with jointed legs

Explanation: Presence of jointed legs is a salient feature of arthropoda and insects belong to arthropoda.

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Short Answer Questions

35. Write true (T) or false (F)

- (a) Whittaker proposed five kingdom classification.
- (b) Monera is divided into Archaeobacteria and Eubacteria.
- (c) Starting from Class, Species comes before the Genus.
- (d) Anabaena belongs to the kingdom Monera.
- (e) Blue green algae belongs to the kingdom Protista.
- (f) All prokaryotes are classified under Monera.

Ans.

- (a) T
- (b) T
- (c) F
- (d) T
- (e) F
- (f) T

36. Fill in the blanks

(a) Fungi shows _____ mode of nutrition.

Ans. saprotrophic

(b) Cell wall of fungi is made up of _____.

Ans. chitin

(c) Association between blue green algae and fungi is called as _____.

Ans. lichens

(d) Chemical nature of chitin is _____.

Ans. carbohydrate

(e) _____ has smallest number of organisms with maximum number of similar characters.

Ans. species

(f) Plants without well differentiated stem, root and leaf are kept in _____.

Ans. thallophyta

(g) _____ are called as amphibians of the plant kingdom.

Ans. bryophytes

37. You are provided with the seeds of gram, wheat, rice, pumpkin, maize and pea. Classify them whether they are monocot or dicot.

Ans.

Gram—dicot
Wheat—monocot
Rice—monocot
Pumpkin—dicot
Maize—monocot
Pea—dicot

38. Match items of column (A) with items of column (B)

Column (A)	Column (B)
(a) Naked seed	(A) Angiosperms
(b) Covered seed	(B) Gymnosperms
(c) Flagella	(C) Bryophytes
(d) Marchantia	(D) Euglena
(e) Marsilea	(E) Thallophyta
(f) Cladophora	(F) Pteridophyta
(g) Penicillium	(G) Fungi

Ans. (a)—B;
 (b)—A;
 (c)—D;
 (d)—C;
 (e)—F;
 (f)—E,
 (g)—G.

39. Match items of column (A) with items of column (B)

Column (A)	Column (B)
(a) Pore bearing animals	(A) Arthropoda
(b) Diploblastic	(B) Coelenterata
(c) Metameric segmentation	(C) Porifera
(d) Jointed legs	(D) Echinodermata
(e) Soft bodied animals	(E) Mollusca
(f) Spiny skinned animals	(F) Annelida

Ans. (a)—C;
 (b)—B;
 (c)—F;
 (d)—A;
 (e)—E;
 (f)—D.

40. Classify the following organisms based on the absence/presence of true coelom (i.e., acoelomate, pseudocoelomate and coelomate) Spongilla, Sea anemone, Planaria, Liver flukes, Wuchereria, Ascaris, Nereis, Earthworm, Scorpion, Birds, Fishes, Horse.

Ans. Spongilla—Acoelomate
 Sea anemone—Acoelomate
 Planaria—Acoelomate
 Liver fluke—Acoelomate
 Wuchereria—Pseudocoelomate
 Ascaris—Pseudocoelomate
 Nereis—Coelomate
 Scorpion—Coelomate

Earthworm—Coelomate
Birds, Fishes and Horse—Coelomate

- 41. Endoskeleton of fishes are made up of cartilage and bone; classify the following fishes as cartilaginous or bony.**

Torpedo, Sting ray, Dog fish, Rohu, Angler fish, Exocoetus.

- Ans.** Torpedo—Cartilaginous
Sting ray—Cartilaginous
Dog fish—Cartilaginous
Rohu—Bony
Angler fish—Cartilaginous
Exocoetus—bony.

- 42. Classify the following based on number of chambers in their heart. Rohu, Scoliodon, Frog, Salamander, Flying lizard, King Cobra, Crocodile, Ostrich, Pigeon, Bat, Whale**

- Ans.** Rohu, Scoliodon— 2 chambered. Frog, Salamander, Flying lizard, King Cobra—3 chambered. Crocodile, Ostrich, Pigeon, Bat, Whale—4 chambered.

- 43. Classify Rohu, Scoliodon, Flying lizard, King Kobra, Frog, Salamander, Ostrich, Pigeon, Bat, Crocodile and Whale into the cold blooded/warm blooded animals.**

- Ans.** Cold blooded—Rohu, Scoliodon, Frog, Salamander, Flying Lizard, King Cobra, Crocodile, Warm blooded— Ostrich, Pigeon, Bat, Whale.

- 44. Name two egg laying mammals.**

- Ans.** (i) Platypus (ii) Echidna

- 45. Fill in the blanks**

(a) Five kingdom classification of living organisms is given by _____.

Ans. Robert Whittaker

(b) Basic smallest unit of classification is _____.

Ans. Species

(c) Prokaryotes are grouped in Kingdom _____.

Ans. Monera

(d) Paramecium is a protista because of its _____.

Ans. Eukaryotic unicellular organisms

(e) Fungi do not contain _____.

Ans. Chlorophyll

(f) A fungus _____ can be seen without microscope.

Ans. Mushroom

(g) Common fungi used in preparing the bread is _____.

Ans. Yeast

(h) Algae and fungi form symbiotic association called _____.

Ans. Lichens

46. Give True (T) and False (F)

(a) Gymnosperms differ from Angiosperms in having covered seed.

(b) Non-flowering plants are called Cryptogamae.

(c) Bryophytes have conducting tissue.

(d) Funaria is a moss.

(e) Compound leaves are found in many ferns.

(f) Seeds contain embryo.

Ans.

(a) F

(b) T

(c) F

(d) T

(e) T

(f) T

47. Give examples for the following

(a) Bilateral, dorsiventral symmetry is found in _____.

Ans. Liver fluke

(b) Worms causing disease elephantiasis is _____.

Ans. Filarial worm

(c) Open circulatory system is found in _____ where coelomic cavity is filled with blood.

Ans. Arthropods

(d) _____ are known to have pseudocoelom.

Ans. Nematodes

48. Label a,b,c and d. given in Fig. 7.1 Give the function of (b)

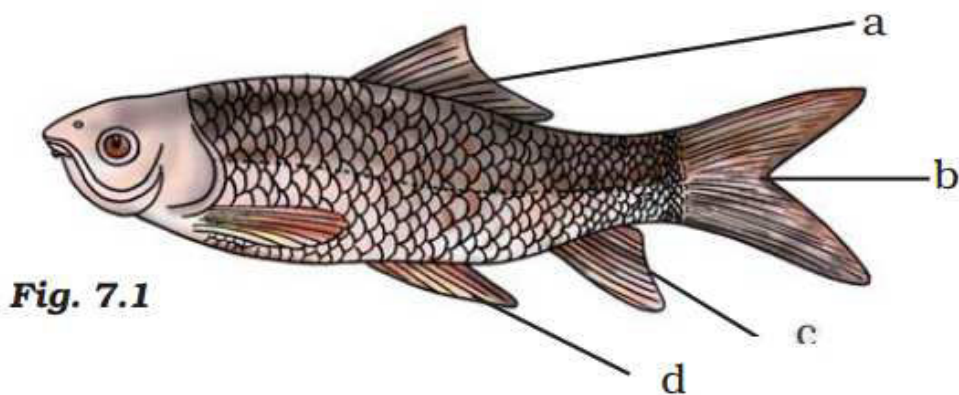


Fig. 7.1

Ans. (a) Dorsal fin

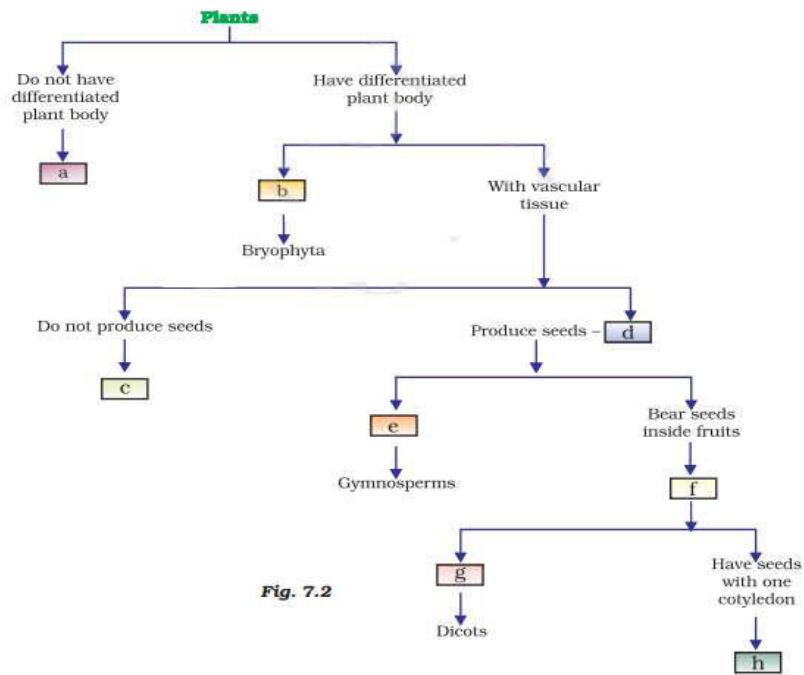
(b) Caudal fin

(c) Pelvic fin

(d) Pectoral fin

Function of Caudal fin–Caudal fin helps in streamlined movement in water.

49. Fill in the boxes given in Fig. 7.2 with appropriate characteristics/plant group (s)



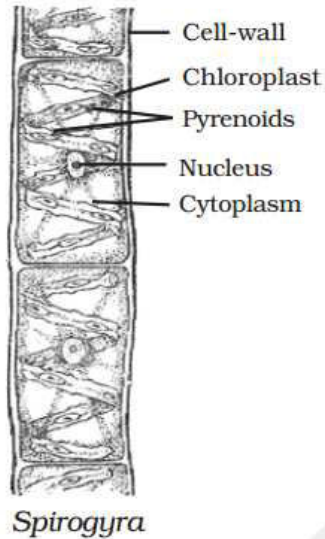
- Ans.** (a) Thallophyta
 (b) Without specialized vascular tissue
 (c) Pteridophyta
 (d) Phanerogams
 (e) Bear naked seeds
 (f) Angiosperms
 (g) Have seeds with two cotyledons
 (h) Monocots

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Long Answer Questions

50. Write names of few thallophytes. Draw a labelled diagram of Spirogyra.

Ans. Ulothrix, Spirogyra, Cladophara, Ulva and Chara,



51. Thallophyta, bryophyta and pteridophyta are called as 'Cryptogams'. Gymnosperms and Angiosperms are called as 'phanerogams'. Discuss why? Draw one example of Gymnosperm.

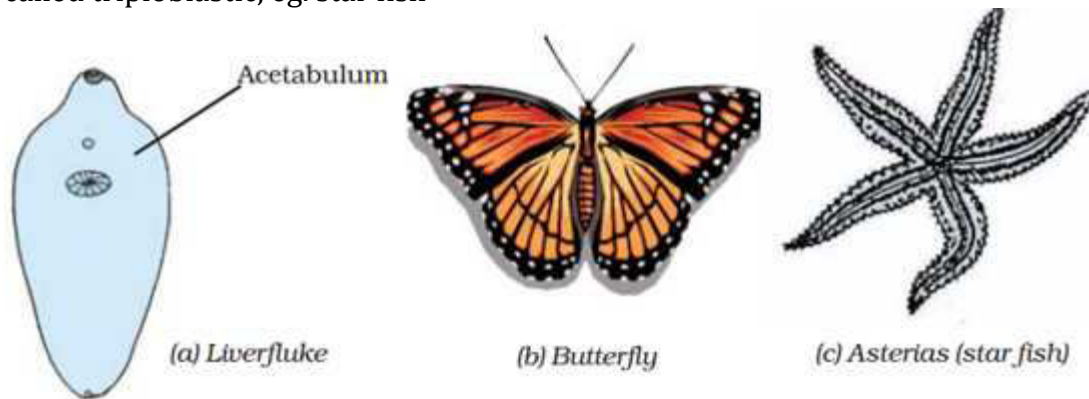
Ans. The Thallophyta, bryophyta and pteridophyta are called as 'Cryptogams' because the reproductive organs of these groups are inconspicuous or hidden. Seeds are absent. On the other hand 'Phanerogams' include gymnosperms and angiosperms which have well differentiated reproductive tissue and the embryo with stored food. Embryo develops into seed.



52. Define the terms and give one example of each
(a) Bilateral symmetry
(b) Coelom

(c) Triploblastic

- Ans.** (a) The left and right halves of the body have the same design, eg, liver fluke.
(b) Coelom is the internal body cavity between visceral organs and body wall in which well-developed organs can be accommodated, eg. Butterfly
(c) Animals having three layers of cells from which differentiated tissue can be made are called triploblastic, eg. star fish



- 53. You are given leech, Nereis, Scolopendra, prawn and scorpion; and all have segmented body organisation. Will you classify them in one group? If no, give the important characters based on which you will separate these organisms into different groups.**

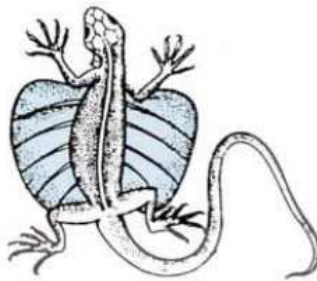
Ans. All organisms given in the question do not belong to same group. Leech and Nereis belong to phylum annelida because they have metamerically segmented body i.e., body is divided into many segments internally by septa. Body segments are lined up one after the other from head to tail. But Scolopendra, prawn and scorpion belong to phylum arthropoda as these have jointed legs and open circulating system.

- 54. Which organism is more complex and evolved among Bacteria, Mushroom and Mango tree. Give reasons.**

Ans. Mango tree is more complex and evolved because, it is eukaryotic, autotrophic, terrestrial sporophyte with covered seed. The bacteria is unicellular prokaryote and fungi are the heterotrophic, simple thallophyte with no tissue systems.

- 55. Differentiate between flying lizard and bird. Draw the diagram.**

Ans. Flying lizard belongs to group reptiles and characterised as cold blooded, body covered with scales and having three chambered heart, while birds belong to group aves and have characteristics of being warm blooded, having feather covered body, forelimbs modified as wings and having four chambered heart.



Flying lizard (Draco)



Pigeon

56. List out some common features in cat, rat and bat.

Ans. Bat, rat and cat belong to class mammalia and have following common features

- (a) All have notochord at some stage of life cycle.
- (b) All are warm blooded.
- (c) All have four chambered heart.
- (d) All have skin covered with hair and with sweat and oil glands.

57. Why do we keep both snake and turtle in the same class?

Ans. Because both are (1) cold blooded (2) have scales (3) breathe through lungs (4) have three chambered heart, and (5) they lay eggs with tough covering.
