Sample

JEEnius AI

PREVIOUS YEAR QUESTIONS · 2000–2026

NEET (UG)

Chapter-wise PYQs

Biology

2000–2026 Questions from 27 years

Chapter-wise previous year questions with full solutions · NEET (UG) and AIPMT

2,590	105	10
QUESTIONS	FIGURES	CHAPTERS

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NEET (UG) Chapter-wise PYQs · Biology

Chapter-wise previous year questions with full solutions · NEET (UG) and AIPMT
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- **Chapter-wise, newest first.** Every chapter opens with its questions, latest year first, followed by an answer key and then full solutions. Attempt the questions before turning to the key.
- **Source line.** Each question shows where it was asked — exam and year, and re-examination where it applies, and its type when it is not a single-correct MCQ.
- **Weightage table.** Biology opens with a table of how often every chapter was asked, overall and in the last five years. Use it to plan revision.
- **More than an answer.** Solutions carry a difficulty rating, a suggested time and the topic; many add a quick approach, the common traps students fall into, and what to revise.
- **Ref numbers.** Each solution carries a Ref number. Quote it to report an error.

Questions by year

2000 **101**	2001 **101**	2002 **96**	2003 **103**	2004 **99**	2005 **96**	2006 **100**	2007 **86**	2008 **89**	2009 **81**	2010 **86**	2011 **97**
2012 **99**	2013 **90**	2014 **87**	2015 **86**	2016 **86**	2017 **90**	2018 **84**	2019 **86**	2020 **86**	2021 **95**	2022 **97**	2023 **96**	2024 **97**
2025 **60**	2026 **216**											

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Biology

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BIOLOGY · CHAPTER 1

Diversity in Living World

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1 NEET 2026

In which one of the following, the ovules are **not** enclosed by an ovary wall and remain exposed?

(A) *Funaria* **(B)** *Pinus*
(C) *Selaginella* **(D)** *Wolffia*

2 NEET 2026

Which one of the following statements is not true about the universal rules of binomial nomenclature?

(A) Biological names are generally in Latin
(B) Both the words in a biological name, when handwritten, are separately underlined or printed in italics
(C) The specific epithet in the biological name starts with a small letter
(D) The first word in the biological name represents the specific epithet, while the second component denotes the genus

3 NEET 2026

The main criteria used for Five Kingdom Classification proposed By R.H. Whittaker (1969) included :

A. Cell structure
B. Body organization
C. Presence of flagellum
D. Reproduction
E. Phylogenetic relationships

Choose the correct answer from the options given below :

(1) A, B, C, D and E **(2)** B, C and D only
(3) A, B, D and E only **(4)** A, B and E only

4 NEET 2026

A group of researchers procured some fish like animals and upon investigation the following characters were observed:

A. Endoskeleton was made of cartilage.
B. Ectoparasitic; as they were found attached on fish skin with their circular sucking mouth.
C. Paired fins and scales were absent, but 7 pairs of gill slits were present.

Which of the following species of animals did they consider to fit best with these characters?

(A) Scoliodon sp. **(B)** Petromyzon sp.
(C) Exocoetus sp. **(D)** Branchiostoma sp.

5 NEET 2026

Select the incorrect statements from the following:

A. Digestive system in Platyhelminthes is incomplete.
B. Bilateral symmetry is a characteristic feature of adult Echinoderms.
C. Pseudocoelom is possessed by Aschelminthes.
D. Notochord is persistent throughout life in the class Chondrichthyes.
E. Members of class Reptilia maintain a constant body temperature.

Choose the answer from the options given below:

(1) A and C only **(2)** B and E only
(3) C and D only **(4)** B and D only

6 NEET 2026

Select the set of fishes which belong to the class Osteichthyes:

(A) Devil fish, Cuttlefish and Hagfish
(B) Saw fish, Fighting fish and Dog fish
(C) Starfish, Hagfish and Cuttlefish
(D) Flying fish, Angel fish and Fighting fish

7 NEET 2026

The flightless bird with forelimbs modified as paddle-like structures suited for swimming is known as:

(A) Struthio **(B)** Neophron
(C) Aptenodytes **(D)** Psittacula

8 NEET 2026 · RE-EXAM · ASSERTION–REASON

Given below are two statements:

Statement I: When any plane passing through the central axis of the body divides the organism into two identical halves, it is called radial symmetry.

Statement II: In phylum Echinodermata, both adults and larvae are radially symmetrical.

In the light of the above statements, choose the most appropriate answer from the options given below:

(A) Both Statement I and Statement II are correct
(B) Both Statement I and Statement II are incorrect
(C) Statement I is correct but Statement II is incorrect
(D) Statement I is incorrect but Statement II is correct

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9 NEET 2026 · RE-EXAM · ASSERTION–REASON

Given below are two statements:

Statement I: In gymnosperms, the male and female gametophytes remain within the sporangia.

Statement II: In gymnosperms, seeds are not covered.

In the light of the above statements, choose the most appropriate answer from the options given below:

(A) Both Statement I and Statement II are correct
(B) Both Statement I and Statement II are incorrect
(C) Statement I is correct but Statement II is incorrect
(D) Statement I is incorrect but Statement II is correct

10 NEET 2026 · RE-EXAM

Match List-I with List-II.

List-I:
A. Spherical
B. Rod
C. Comma
D. Spirillum

List-II:
I. Vibrio
II. Cocci
III. Spirilla
IV. Bacilli

Choose the correct answer from the options given below:

	List-I		List-II
A.	Spherical	I.	Vibrio
B.	Rod	II.	Cocci
C.	Comma	III.	Spirilla
D.	Spirillum	IV.	Bacilli

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(A) A-I, B-III, C-II, D-IV
(B) A-III, B-II, C-I, D-IV
(C) A-II, B-I, C-IV, D-III
(D) A-II, B-IV, C-I, D-III

11 NEET 2026 · RE-EXAM

Arrange the following taxonomic categories in ascending order.

(a) Genus
(b) Class
(c) Order
(d) Phylum
(e) Family
(f) Kingdom
(g) Species

Choose the correct answer from the options given below :

(A) (g), (a), (e), (c), (b), (d), (f)
(B) (a), (c), (d), (g), (f), (b), (e)
(C) (g), (c), (d), (b), (e), (a), (f)
(D) (f), (c), (b), (g), (d), (e), (a)

12 NEET 2026 · RE-EXAM

Match List-I with List-II.

List-I:
A. Family
B. Genus
C. Class
D. Phylum
E. Order

List-II:
I. Sapindales
II. Dicotyledonae
III. Anacardiaceae
IV. Angiospermae
V. Mangifera

Choose the correct answer from the options given below:

	List-I		List-II
A.	Family	I.	Sapindales
B.	Genus	II.	Dicotyledonae
C.	Class	III.	Anacardiaceae
D.	Phylum	IV.	Angiospermae
E.	Order	V.	*Mangifera*

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(A) A-I, B-V, C-II, D-IV, E-III
(B) A-II, B-I, C-III, D-IV, E-V
(C) A-II, B-III, C-V, D-I, E-IV
(D) A-III, B-V, C-II, D-IV, E-I

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13 NEET 2026 · RE-EXAM · MATCHING

Match List-I with List-II.

List-I:
A. Fusion of protoplasms between gametes
B. Fusion of two nuclei
C. Generation of haploid spores

List-II:
I. Meiosis
II. Plasmogamy
III. Karyogamy

Choose the correct answer from the options given below :

	List-I		List-II
A.	Fusion of protoplasms between gametes	I.	Meiosis
B.	Fusion of two nuclei	II.	Plasmogamy
C.	Generation of haploid spores	III.	Karyogamy

NEET Jeenius

(A) A-II, B-III, C-I **(B)** A-II, B-I, C-III
(C) A-III, B-II, C-I **(D)** A-I, B-III, C-II

14 NEET 2026 · RE-EXAM · ASSERTION–REASON

Given below are two statements:

Statement I: The class name Reptilia refers to creeping or crawling mode of locomotion.

Statement II: All organisms belonging to Reptilia have three chambered heart.

In the light of the above statements, choose the most appropriate answer from the options given below:

(A) Both Statement I and Statement II are correct
(B) Both Statement I and Statement II are incorrect
(C) Statement I is correct but Statement II is incorrect
(D) Statement I is incorrect but Statement II is correct

15 NEET 2026 · RE-EXAM

Arrange the following elements in descending order of their contribution to percentage weight of the human body.
(a) Oxygen
(b) Carbon
(c) Hydrogen
(d) Nitrogen
Choose the correct answer from the options given below:

(A) (a), (b), (c), (d) **(B)** (c), (a), (b), (d)
(C) (b), (c), (d), (a) **(D)** (b), (a), (c), (d)

16 NEET 2026 · RE-EXAM

Symbiotic association between fungi and algae are called _____.

(A) lichens **(B)** sponges
(C) mycorrhiza **(D)** chrysophytes

17 NEET 2026 · RE-EXAM

Which of the following is not a part of human central neural system?

(A) Arachnoid **(B)** Dura mater
(C) Pia mater **(D)** Pericardium

18 NEET 2026 · RE-EXAM

Phyllotaxy is the pattern of arrangement of _____.

(A) leaves **(B)** flowers
(C) fruits **(D)** sepals

19 NEET 2026 · RE-EXAM

Given below are two statements: Statement I: When any plane passing through the central axis of the body divides the organism into two identical halves, it is called radial symmetry. Statement II: In phylum Echinodermata, both adults and larvae are radially symmetrical. Choose the most appropriate answer:

(A) Both Statement I and Statement II are correct
(B) Both Statement I and Statement II are incorrect
(C) Statement I is correct but Statement II is incorrect
(D) Statement I is incorrect but Statement II is correct

20 NEET 2026 · RE-EXAM · ASSERTION–REASON

Given below are two statements: Statement I: In gymnosperms, the male and female gametophytes remain within the sporangia. Statement II: In gymnosperms, seeds are not covered. Choose the most appropriate answer:

(A) Both Statement I and Statement II are correct
(B) Both Statement I and Statement II are incorrect
(C) Statement I is correct but Statement II is incorrect
(D) Statement I is incorrect but Statement II is correct

21 NEET 2026 · RE-EXAM · MATCHING

Match List-I with List-II. A. Family - I. Sapindales; B. Genus - II. Dicotyledonae; C. Class - III. Anacardiaceae; D. Phylum - IV. Angiospermae; E. Order - V. Mangifera. Choose the correct answer:

(A) A-I, B-V, C-II, D-IV, E-III **(B)** A-II, B-I, C-III, D-IV, E-V
(C) A-II, B-III, C-V, D-I, E-IV **(D)** A-III, B-V, C-II, D-IV, E-I

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22 NEET 2026 · RE-EXAM

Arrange the following taxonomic categories in ascending order. (a) Genus (b) Class (c) Order (d) Phylum (e) Family (f) Kingdom (g) Species.

(A) (g), (a), (e), (c), (b), (d), (f) **(B)** (a), (c), (d), (g), (f), (b), (e)
(C) (g), (c), (d), (b), (e), (a), (f) **(D)** (f), (c), (b), (g), (d), (e), (a)

23 NEET 2026 · RE-EXAM

Sphenopsida class belongs to _____.

(A) bryophytes **(B)** angiosperms
(C) gymnosperms **(D)** pteridophytes

24 NEET 2026 · RE-EXAM

Genus represents _____.

(A) an individual plant or animal
(B) a population of plants and animals
(C) a group of closely related species
(D) a group of closely related families

25 NEET 2026 · RE-EXAM

Which of the following is not a prokaryote?

(A) Bacteria **(B)** Blue green algae
(C) Mycoplasma **(D)** Fungi

26 NEET 2026 · RE-EXAM

Given below are two statements: Statement I: The class name Reptilia refers to creeping or crawling mode of locomotion. Statement II: All organisms belonging to Reptilia have three chambered heart. Choose the most appropriate answer:

(A) Both Statement I and Statement II are correct
(B) Both Statement I and Statement II are incorrect
(C) Statement I is correct but Statement II is incorrect
(D) Statement I is incorrect but Statement II is correct

27 NEET 2026 · RE-EXAM

Which of the following is not a characteristic of chordates?

(A) Presence of notochord **(B)** Central nervous system is dorsal
(C) Absence of gills **(D)** Presence of post anal part (tail)

28 NEET 2026 · RE-EXAM

Which of the following structure is not a part of the male reproductive system?

(A) Rete testis **(B)** Epididymis
(C) Vasa efferentia **(D)** Infundibulum

29 NEET 2026 · RE-EXAM

Arrange the following in descending order of number of species in the Amazonian rain forest. (a) Plants (b) Birds (c) Fishes (d) Invertebrates (e) Mammals

(A) (c) > (b) > (d) > (e) > (a) **(B)** (d) > (a) > (c) > (b) > (e)
(C) (e) > (b) > (a) > (c) > (d) **(D)** (b) > (a) > (d) > (c) > (e)

30 NEET 2026 · RE-EXAM

Which of the following are primary consumers in a food chain?

(A) Parasites **(B)** Predators
(C) Herbivores **(D)** Carnivores

31 NEET 2026 · RE-EXAM

Which of the following plant produces non-albuminous seeds?

(A) Wheat **(B)** Maize
(C) Barley **(D)** Pea

32 NEET 2026 · RE-EXAM · ASSERTION–REASON

Given below are two statements: Statement I: Modern Homo sapiens arose in Australia and moved across continents. Statement II: Homo sapiens arose around 75000 to 10000 years ago. Choose the most appropriate answer:

(A) Both Statement I and Statement II are correct
(B) Both Statement I and Statement II are incorrect
(C) Statement I is correct but Statement II is incorrect
(D) Statement I is incorrect but Statement II is correct

33 NEET 2026 · RE-EXAM

The covering of ovum at ovulation is _____.

(A) endometrium **(B)** zona radiata
(C) zona pellucida **(D)** chorion

34 NEET 2025

While trying to find out the characteristics of a newly found animal, a researcher did the histology of the adult animal and observed a cavity with presence of mesodermal tissue towards the body wall but no mesodermal tissue towards the alimentary canal. What could be the possible coelom of that animal?

(A) Acoelomate **(B)** Pseudocoelomate
(C) Schizocoelomate **(D)** Spongocoelomate

35 NEET 2025

Given below are the stages in the life cycle of pteridophytes. A. Prothallus stage B. Meiosis in spore mother cells C. Fertilisation D. Formation of archegonia and antheridia in gametophyte E. Transfer of antherozoids to the archegonia in presence of water. Arrange the following stages in the correct sequence.

(A) B, A, D, E, C **(B)** B, A, E, C, D
(C) D, E, C, A, B **(D)** E, D, C, B, A

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36 NEET 2025

Which of the following organisms cannot fix nitrogen?
A. Azotobacter
B. Oscillatoria
C. Anabaena
D. Volvox
E. Nostoc
Choose the correct answer from the options given below.

(A) A only **(B)** D only
(C) B only **(D)** E only

37 NEET 2025

Each of the following characteristics represents a kingdom proposed by Whittaker. Arrange the following in increasing order of complexity of body organization. A. Multicellular heterotrophs with cell wall made of chitin. B. Heterotrophs with tissue/organ/organ system level of body organization. C. Prokaryotes with cell wall made of polysaccharides and amino acids. D. Eukaryotic autotrophs with tissue/organ level of body organization. E. Eukaryotes with cellular body organization. Choose the correct sequence.

(A) A, C, E, B, D **(B)** C, E, A, D, B
(C) A, C, E, D, B **(D)** C, E, A, B, D

38 NEET 2025

All living members of the class Cyclostomata are:

(A) Free living **(B)** Endoparasite
(C) Symbiotic **(D)** Ectoparasite

39 NEET 2025 · ASSERTION–REASON

Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A): All vertebrates are chordates but all chordates are not vertebrates.

Reason (R): The members of subphylum Vertebrata possess notochord during the embryonic period. The notochord is replaced by a cartilaginous or bony vertebral column in the adult.

In the light of the above statements, choose the correct answer.

(A) Both (A) and (R) are true and (R) is the correct explanation of (A).
(B) Both (A) and (R) are true but (R) is not the correct explanation of (A).
(C) (A) is true but (R) is false.
(D) (A) is false but (R) is true.

40 NEET 2025 · MATCHING

Match List-I with List-II.

List-I:
A. Pteridophyte
B. Bryophyte
C. Angiosperm
D. Gymnosperm

List-II:
I. Salvia
II. Ginkgo
III. Polytrichum
IV. Salvinia

Choose the option with all correct matches.

(A) A-III, B-IV, C-II, D-I **(B)** A-IV, B-III, C-I, D-II
(C) A-III, B-IV, C-I, D-II **(D)** A-IV, B-III, C-II, D-I

41 NEET 2025

Role of the water vascular system in Echinoderms is:
A. Respiration and locomotion
B. Excretion and locomotion
C. Capture and transport of food
D. Digestion and respiration
E. Digestion and excretion
Choose the correct answer from the options given below.

(A) A and B Only **(B)** A and C Only
(C) B and C Only **(D)** B, D and E Only

42 NEET 2025

Which one of the following statements refers to reductionism?

(A) Physico-chemical approach to study and understand living organisms
(B) Physiological approach to study and understand living organisms
(C) Chemical approach to study and understand living organisms
(D) Behavioural approach to study and understand living organisms

43 NEET 2025

The approach to understand living organisms by reducing complex biological systems into simpler components is called which of the following?

(A) Reductionist Biology **(B)** Systems Biology
(C) Taxonomy **(D)** Ecology

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44 NEET 2024 · ASSERTION–REASON

Given below are two statements: Assertion A: Members of subphylum Vertebrata possess notochord during the embryonic period, and the notochord is replaced by a cartilaginous or bony vertebral column in the adult. Reason R: Thus all chordates are vertebrates, but not all vertebrates are chordates. In the light of the above statements, choose the correct answer.

(A) A is true but R is false.
(B) A is false but R is true.
(C) Both A and R are true and R is the correct explanation of A.
(D) Both A and R are true but R is NOT the correct explanation of A.

45 NEET 2024 · MATCHING

Match List-I with List-II.

List-I:
A. Chondrichthyes
B. Cyclostomata
C. Osteichthyes
D. Amphibia

List-II:
I. Clarias
II. Carcharodon
III. Myxine
IV. Ichthyophis

Choose the correct answer from the options given below.

	List-I		List-II
A.	Chondrichthyes	I.	*Clarias*
B.	Cyclostomata	II.	*Carcharodon*
C.	Osteichthyes	III.	*Myxine*
D.	Amphibia	IV.	*Ichthyophis*

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(A) A-II, B-IV, C-I, D-III
(B) A-I, B-III, C-II, D-IV
(C) A-II, B-III, C-I, D-IV
(D) A-I, B-II, C-III, D-IV

46 NEET 2024

Which one of the following is not found in Gymnosperms?

(A) Sieve cells
(B) Albuminous cells
(C) Tracheids
(D) Vessels

47 NEET 2024

Identify the incorrect pair:

(A) Sphenopsida - Adiantum
(B) Pteropsida - Dryopteris
(C) Psilopsida - Psilotum
(D) Lycopsida - Selaginella

48 NEET 2024 · MATCHING

Match List-I with List-II:

List-I (Organisms)
A. Euglenoid
B. Dinoflagellate
C. Slime mould
D. Plasmodium

List-II (Mode of Nutrition)
I. Parasitic
II. Saprophytic
III. Photosynthetic
IV. Switching between photosynthetic and heterotrophic mode

Choose the correct answer from the options given below:

(A) A-III, B-IV, C-II, D-I
(B) A-IV, B-II, C-I, D-III
(C) A-IV, B-III, C-II, D-I
(D) A-IV, B-II, C-III, D-I

49 NEET 2024

Which of the following pairs is an incorrect match?

(A) Annelids and arthropods - Bilateral symmetry
(B) Sponges - Acoelomates
(C) Coelenterates and Ctenophores - Radial symmetry
(D) Platyhelminthes - Diploblastic organisation

50 NEET 2023 · ASSERTION–REASON

Given below are two statements: One labelled as **Assertion A** and the other labelled as **Reason R**:

Assertion A: The first stage of gametophyte in the life cycle of moss is protonema stage.

Reason R: Protonema develops directly from spores produced in capsule.

In the light of the above statements, choose the **most appropriate** answer from options given below:

(A) Both **A** and **R** are correct and **R** is the correct explanation of **A**
(B) Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
(C) **A** is correct but **R** is not correct
(D) **A** is not correct but **R** is correct

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51 NEET 2023

Identify the pair of heterosporous pteridophytes among the following :

(A) Lycopodium and Selaginella
(B) Selaginella and Salvinia
(C) Psilotum and Salvinia
(D) Equisetum and Salvinia

52 NEET 2023 · ASSERTION–REASON

Given below are two statements: One labelled as **Assertion A** and the other labelled as **Reason R**:

Assertion A: In gymnosperms the pollen grains are released from the microsporangium and carried by air currents.

Reason R: Air currents carry the pollen grains to the mouth of the archegonia where the male gametes are discharged and pollen tube is not formed.

In the light of the above statements, choose the **correct** answer from the options given below:

(A) Both A and R are true and R is the correct explanation of A
(B) Both A and R are true but R is NOT the correct explanation of A
(C) A is true but R is false
(D) A is false but R is true

53 NEET 2023

Radial symmetry is NOT found in adults of phylum _____.

(A) Ctenophora
(B) Hemichordata
(C) Coelenterata
(D) Echinodermata

54 NEET 2023

Select the correct statements with reference to chordates.

A. Presence of a mid-dorsal, solid and double nerve cord.
B. Presence of closed circulatory system.
C. Presence of paired pharyngeal gill slits.
D. Presence of dorsal heart
E. Triploblastic pseudocoelomate animals.

Choose the correct answer from the options given below:

(A) A, C and D only
(B) B and C only
(C) B, D and E only
(D) C, D and E only

55 NEET 2023

The unique mammalian characteristics are:

(A) hairs, tympanic membrane and mammary glands
(B) hairs, pinna and mammary glands
(C) hairs, pinna and indirect development
(D) pinna, monocondylic skull and mammary glands

56 NEET 2022

Hydrocolloid carrageen is obtained from:

(A) Phaeophyceae only
(B) Chlorophyceae and Phaeophyceae
(C) Phaeophyceae and Rhodophyceae
(D) Rhodophyceae only

57 NEET 2022

Which of the following is incorrectly matched?

(A) Volvox – Starch
(B) Ectocarpus – Fucoxanthin
(C) Ulothrix – Mannitol
(D) Porphyra – Floridian Starch

58 NEET 2022

Which one of the following produces nitrogen fixing nodules on the roots of *Alnus*?

(A) *Beijerinckia*
(B) *Rhizobium*
(C) *Frankia*
(D) *Rhodospirillum*

59 NEET 2022

Exoskeleton of arthropods is composed of :

(A) Glucosamine
(B) Cutin
(C) Cellulose
(D) Chitin

60 NEET 2022 · MATCHING

Match the plant with the kind of life cycle it exhibits:

	List-I		List-II
(a)	Spirogyra	(i)	Dominant diploid sporophyte vascular plant, with highly reduced male or female gametophyte
(b)	Fern	(ii)	Dominant haploid free-living gametophyte
(c)	Funaria	(iii)	Dominant diploid sporophyte alternating with reduced gametophyte called prothallus
(d)	Cycas	(iv)	Dominant haploid leafy gametophyte alternating with partially dependent multicellular sporophyte

Choose the correct answer from the options given below :

(A) (a)-(ii), (b)-(iv), (c)-(i), (d)-(iii)
(B) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)
(C) (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)
(D) (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)

61 NEET 2022

Identify the asexual reproductive structure associated with *Penicillium* :

(A) Buds
(B) Zoospores
(C) Conidia
(D) Gemmules

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62 NEET 2022 · ASSERTION–REASON

Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A): All vertebrates are chordates but all chordates are not vertebrates.

Reason (R): Notochord is replaced by vertebral column in the adult vertebrates.

In the light of the above statements, choose the most appropriate answer from the option given below:

(A) (A) is not correct but (R) is correct
(B) Both (A) and (R) are correct and (R) is the correct explanation of (A)
(C) Both (A) and (R) are correct but (R) is not the correct explanation of (A)
(D) (A) is correct but (R) is not correct

63 NEET 2022 · ASSERTION–REASON

Given below are two statements :

Statement I: Mycoplasma can pass through less than 1 micron filter size.

Statement II: Mycoplasma are bacteria with cell wall.

In the light of the above statements, choose the most appropriate answer from the options given below

(A) Statement I is incorrect but Statement II are correct
(B) Both Statement I and Statement II are correct
(C) Both Statement I and Statement II are incorrect
(D) Statement I is correct but Statement II is incorrect

64 NEET 2022

In the taxonomic categories which hierarchical arrangement in ascending order is correct in case of animals?

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

65 NEET 2022

Which of the following is a correct statement?

(A) Mycoplasma have DNA, ribosome and cell wall.
(B) Cyanobacteria are a group of autotrophic organisms classified under kingdom Monera.
(C) Bacteria are exclusively heterotrophic organisms.
(D) Slime moulds are saprophytic organisms classified under Kingdom Monera.

66 NEET 2021

Which of the following plants is monoecious?

(A) Cycas circinalis **(B)** Carica papaya
(C) Chara **(D)** Marchantia polymorpha

67 NEET 2021

Gemmae are present in

(A) Some Liverworts **(B)** Mosses
(C) Pteridophytes **(D)** Some Gymnosperms

68 NEET 2021

Which of the following algae produce Carrageen?

(A) Blue-green algae **(B)** Green algae
(C) Brown algae **(D)** Red algae

69 NEET 2021

Which of the following algae contains mannitol as reserve food material?

(A) Ulothrix **(B)** Ectocarpus
(C) Gracilaria **(D)** Volvox

70 NEET 2021

Genera like *Selaginella* and *Salvinia* produce two kinds of spores. Such plants are known as:

(A) Heterosporous **(B)** Homosorus
(C) Heterosorus **(D)** Homosporous

71 NEET 2021 · MATCHING

Match the following:

List-I		List-II	
(a)	Physalia	(i)	Pearl oyster
(b)	Limulus	(ii)	Portuguese Man of War
(c)	Ancylostoma	(iii)	Living fossil
(d)	Pinctada	(iv)	Hookworm

Choose the correct answer from the options given below.

List-I		List-II	
(a)	*Physalia*	(i)	Pearl oyster
(b)	*Limulus*	(ii)	Portuguese Man of War
(c)	*Ancylostoma*	(iii)	Living fossil
(d)	*Pinctada*	(iv)	Hookworm

NEET Jeenius

(A) (i) (iv) (iii) (ii) **(B)** (ii) (iii) (i) (iv)
(C) (iv) (i) (iii) (ii) **(D)** (ii) (iii) (iv) (i)

72 NEET 2021

Which one of the following belongs to the family Muscidae?

(A) House fly **(B)** Fire fly
(C) Grasshopper **(D)** Cockroach

73 NEET 2021

Which one of the following organisms bears hollow and pneumatic long bones?

(A) Ornithorhynchus **(B)** Neophron
(C) Hemidactylus **(D)** Macropus

74 NEET 2021

Read the following statements

(a) Metagenesis is observed in Helminths.
(b) Echinoderms are triploblastic and coelomate animals.
(c) Round worms have organ-system level of body organization.
(d) Comb plates present in ctenophores help in digestion.
(e) Water vascular system is characteristic of Echinoderms.

Choose the correct answer from the options given below.

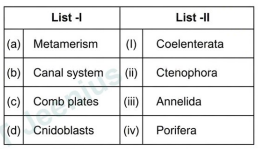
(A) (b), (c) and (e) are correct **(B)** (c), (d) and (e) are correct
(C) (a), (b) and (c) are correct **(D)** (a), (d) and (e) are correct

75 NEET 2021 · MATCHING

Match List - I with List - II

List -I		List -II	
(a)	Metamerism	(I)	Coelenterata
(b)	Canal system	(ii)	Ctenophora
(c)	Comb plates	(iii)	Annelida
(d)	Cnidoblasts	(iv)	Porifera

Choose the correct answer from the options given below.



NEET Jeenius

(A) (iv) (i) (ii) (iii) **(B)** (iv) (iii) (i) (ii)
(C) (iii) (iv) (i) (ii) **(D)** (iii) (iv) (ii) (i)

76 NEET 2020 · MATCHING

Match the following columns and select the correct option.

Column-I	Column-II
(a) Gregarious, polyphagous pest	(i) Asterias
(b) Adult with radial symmetry and larva with bilateral symmetry	(ii) Scorpion
(c) Book lungs	(iii) Ctenoplana
(d) Bioluminescence	(iv) Locusta

(A) (a)-(i), (b)-(ii), (c)-(ii), (d)-(i)
(B) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)
(C) (a)-(iii), (b)-(ii), (c)-(i), (d)-(iv)
(D) (a)-(ii), (b)-(i), (c)-(iii), (d)-(iv)

77 NEET 2020

Which of the following statements are true for the phylum-Chordata?
(a) In Urochordata notochord extends from head to tail and it is present throughout their life.
(b) In Vertebrata notochord is present during the embryonic period only.
(c) Central nervous system is dorsal and hollow.
(d) Chordata is divided into 3 subphyla : Hemichordata, Tunicata and Cephalochordata.

(A) (d) and (c) **(B)** (c) and (a)
(C) (a) and (b) **(D)** (b) and (c)

78 NEET 2020 · MATCHING

Match the following columns and select the correct option.

Column-I	Column-II
(a) 6-15 pairs of gill slits	(i) Trygon
(b) Heterocercal caudal fin	(ii) Cyclostomes
(c) Air Bladder	(iii) Chondrichthyes
(d) Poison sting	(iv) Osteichthyes

(A) (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)
(B) (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)
(C) (a)-(iv), (b)-(ii), (c)-(iii), (d)-(i)
(D) (a)-(i), (b)-(iv), (c)-(iii), (d)-(ii)

79 NEET 2020

Floridean starch has structure similar to

(A) Starch and cellulose **(B)** Amylopectin and glycogen
(C) Mannitol and algin **(D)** Laminarin and cellulose

80 NEET 2020

Which of the following pairs is of unicellular algae?

(A) Laminaria and Sargassum **(B)** Gelidium and Gracilaria
(C) Anabaena and Volvox **(D)** Chlorella and Spirulina

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81 NEET 2020

Which of the following is correct about viroids?

(A) They have RNA with protein coat
(B) They have free RNA without protein coat
(C) They have DNA with protein coat
(D) They have free DNA without protein coat

82 NEET 2020

Strobili or cones are found in

(A) Salvinia **(B)** Pteris
(C) Marchantia **(D)** Equisetum

83 NEET 2020

Bilaterally symmetrical and acoelomate animals are exemplified by

(A) Ctenophora **(B)** Platyhelminthes
(C) Aschelminthes **(D)** Annelida

84 NEET 2019

From evolutionary point of view, retention of the female gametophyte with developing young embryo on the parent sporophyte for some time, is first observed in

(A) Gymnosperms **(B)** Liverworts
(C) Mosses **(D)** Pteridophytes

85 NEET 2019 · MATCHING

Match the following organisms with their respective characteristics :

(a) Pila
(i) Flame cells
(b) Bombyx
(ii) Comb plates
(c) Pleurobrachia
(iii) Radula
(d) Taenia
(iv) Malpighian tubules

Select the correct option from the following :

(1) (iii) (ii) (iv) (i) **(2)** (iii) (ii) (i) (iv)
(3) (iii) (iv) (ii) (i) **(4)** (ii) (iv) (iii) (i)

86 NEET 2019

Select the correctly written scientific name of Mango which was first described by Carolus Linnaeus

(A) Mangifera Indica **(B)** Mangifera indica Car. Linn.
(C) Mangifera indica Linn. **(D)** Mangifera indica

87 NEET 2019 · MATCHING

Match Column - I with Column - II

Column - I	Column - II
(a) Saprophyte	(i) Symbiotic association of fungi with plant roots
(b) Parasite	(ii) Decomposition of dead organic materials
(c) Lichens	(iii) Living on living plants or animals
(d) Mycorrhiza	(iv) Symbiotic association of algae and fungi

Choose the correct answer from the option given below

(A) (ii) (iii) (iv) (i) **(B)** (i) (ii) (iii) (iv)
(C) (iii) (ii) (i) (iv) **(D)** (ii) (i) (iii) (iv)

88 NEET 2019

Consider following features

(a) Organ system level of organisation
(b) Bilateral symmetry
(c) True coelomates with segmentation of body

Select the correct option of animal groups which possess all the above characteristics

(A) Annelida, Mollusca and Chordata **(B)** Annelida, Arthropoda and Chordata
(C) Annelida, Arthropoda and Mollusca **(D)** Arthropoda, Mollusca and Chordata

89 NEET 2019

Pinus seed cannot germinate and establish without fungal association. This is because :

(A) its seeds contain inhibitors that prevent germination.
(B) its embryo is immature.
(C) it has obligate association with mycorrhizae.
(D) it has very hard seed coat.

90 NEET 2019

Which of the following statements is incorrect?

(A) Prions consist of abnormally folded proteins.
(B) Viroids lack a protein coat.
(C) Viruses are obligate parasites.
(D) Infective constituent in viruses is the protein coat.

91 NEET 2018

Which one of these animals is not a homeotherm?

(A) Macropus **(B)** Chelone
(C) Psittacula **(D)** Camelus

92 NEET 2018

Which of the following organisms are known as chief producers in the oceans?

(A) Dinoflagellates **(B)** Diatoms
(C) Euglenoids **(D)** Cyanobacteria

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93 NEET 2018

Ciliates differ from all other protozoans in

(A) using flagella for locomotion
(B) having a contractile vacuole for removing excess water
(C) having two types of nuclei
(D) using pseudopodia for capturing prey

94 NEET 2018

Which of the following animals does not undergo metamorphosis?

(A) Earthworm **(B)** Tunicate
(C) Starfish **(D)** Moth

95 NEET 2018

Which among the following is not a prokaryote?

(A) Saccharomyces **(B)** Mycobacterium
(C) Oscillatoria **(D)** Nostoc

96 NEET 2018

Which one is wrongly matched?

(A) Uniflagellate gametes – Polysiphonia
(B) Biflagellate zoospores – Brown algae
(C) Unicellular organism – Chlorella
(D) Gemma cups – Marchantia

97 NEET 2018

After karyogamy followed by meiosis, spores are produced exogenously in

(A) Neurospora **(B)** Alternaria
(C) Saccharomyces **(D)** Agaricus

98 NEET 2018

Winged pollen grains are present in

(A) Mustard **(B)** Cycas
(C) Pinus **(D)** Mango

99 NEET 2018

Identify the vertebrate group of animals characterized by crop and gizzard in its digestive system

(A) Amphibia **(B)** Reptilia
(C) Osteichthyes **(D)** Aves

100 NEET 2018 · MATCHING

Match the items given in Column I with those in Column II and select the correct option given below:

Column I	Column II
a. Herbarium	(i) It is a place having a collection of preserved plants and animals
b. Key	(ii) A list that enumerates methodically all the species found in an area with brief description aiding identification
c. Museum	(iii) Is a place where dried and pressed plant specimens mounted on sheets are kept
d. Catalogue	(iv) A booklet containing a list of characters and their alternates which are helpful in identification of various taxa.

(A) a-(i), b-(iv), c-(iii), d-(ii) **(B)** a-(iii), b-(ii), c-(i), d-(iv)
(C) a-(iii), b-(iv), c-(i), d-(ii) **(D)** a-(ii), b-(iv), c-(iii), d-(i)

101 NEET 2017

Viroids differ from viruses in having :

(A) RNA molecules without protein coat
(B) DNA molecules with protein coat
(C) DNA molecules without protein coat
(D) RNA molecules with protein coat

102 NEET 2017

An example of colonial alga is

(A) Spirogyra **(B)** Chlorella
(C) Volvox **(D)** Ulothrix

103 NEET 2017

In case of poriferans the spongocoel is lined with flagellated cells called :

(A) Mesenchymal cells **(B)** Ostia
(C) Oscula **(D)** Choanocytes

104 NEET 2017

Which among the following are the smallest living cells, known without a definite cell wall, pathogenic to plants as well as animals and can survive without oxygen?

(A) Nostoc **(B)** Bacillus
(C) Pseudomonas **(D)** Mycoplasma

105 NEET 2017

Select the mismatch :

(A) Equisetum – Homosporous **(B)** Pinus – Dioecious
(C) Cycas – Dioecious **(D)** Salvinia – Heterosporous

106 NEET 2017

Zygotic meiosis is characteristic of

(A) Chlamydomonas **(B)** Marchantia
(C) Fucus **(D)** Funaria

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107 NEET 2017

An important characteristic that Hemichordates share with Chordates is

(A) Pharynx without gill slits
(B) Absence of notochord
(C) Ventral tubular nerve cord
(D) Pharynx with gill slits

108 NEET 2017

Life cycle of Ectocarpus and Fucus respectively are

(A) Haplodiplontic, Haplontic
(B) Haplontic, Diplontic
(C) Diplontic, Haplodiplontic
(D) Haplodiplontic, Diplontic

109 NEET 2017

Which among these is the correct combination of aquatic mammals?

(A) Trygon, Whales, Seals
(B) Seals, Dolphins, Sharks
(C) Dolphins, Seals, Trygon
(D) Whales, Dolphins, Seals

110 NEET 2017

Which of the following represents order of 'Horse'?

(A) Ferus
(B) Equidae
(C) Perissodactyla
(D) Caballus

111 NEET 2017

Which of the following are found in extreme saline conditions?

(A) Mycobacteria
(B) Archaebacteria
(C) Eubacteria
(D) Cyanobacteria

112 NEET 2016

Which of the following statements is **wrong** for viroids?

(A) They lack a protein coat
(B) They are smaller than viruses
(C) They cause infections
(D) Their RNA is of high molecular weight

113 NEET 2016

Which of the following features is not present in *Periplaneta americana*?

(A) Schizocoelom as body cavity
(B) Indeterminate and radial cleavage during embryonic development
(C) Exoskeleton composed of N-acetylglucosamine
(D) Metamerically segmented body

114 NEET 2016

Which one of the following statements is wrong?

(A) Cyanobacteria are also called blue-green algae
(B) Golden algae are also called desmids
(C) Eubacteria are also called false bacteria
(D) Phycomycetes are also called algal fungi

115 NEET 2016

Select the correct statement :-

(A) Gymnosperms are both homosporous and heterosporous
(B) Salvinia, Ginkgo and Pinus all are gymnosperms
(C) Sequoia is one of the tallest trees
(D) The leaves of gymnosperms are not well adapted to extremes of climate

116 NEET 2016

Which of the following characteristic features always holds true for the corresponding group of animals?

(1)	Cartilaginous endoskeleton	Chondrichthyes
(2)	Viviparous	Mammalia
(3)	Possess a mouth with an upper and a lower jaw	Chordata
(4)	3 - chambered heart with one incompletely divided ventricle	Reptilia

NEET Jeenius

(A) Cartilaginous endoskeleton | Chondrichthyes
(B) Viviparous | Mammalia
(C) Possess a mouth with an upper and a lower jaw | Chordata
(D) 3 - chambered heart with one incompletely divided ventricle | Reptilia

117 NEET 2016

In bryophytes and pteridophytes, transport of male gametes requires :-

(A) Wind
(B) Insects
(C) Birds
(D) Water

118 NEET 2016

Which one of the following characteristics is not shared by birds and mammals?

(A) Ossified endoskeleton
(B) Breathing using lungs
(C) Viviparity
(D) Warm blooded nature

119 NEET 2016

Nomenclature is governed by certain universal rules. Which one of the following is contrary to the rules of nomenclature?

(A) Biological names can be written in any language
(B) The first word in a biological name represents the genus name, and the second is a specific epithet
(C) The names are written in Latin and are italicised
(D) When written by hand, the names are to be underlined

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120 NEET 2016

Chrysophytes, Euglenoids, Dinoflagellates and Slime moulds are included in the kingdom :-

(A) Monera **(B)** Protista
(C) Fungi **(D)** Animalia

121 NEET 2016

The primitive prokaryotes responsible for the production of biogas from the dung of ruminant animals, include the :-

(A) Halophiles **(B)** Thermoacidiophiles
(C) Methanogens **(D)** Eubacteria

122 NEET 2016

Which of the following features is not present in the Phylum - Arthropoda?

(A) Chitinous exoskeleton **(B)** Metameric segmentation
(C) Parapodia **(D)** Jointed appendages

123 AIPMT 2015

Which one is a wrong statement?

(A) Brown algae have chlorophyll a and c, and fucoxanthin
(B) Archegonia are found in Bryophyta, Pteridophyta and Gymnosperms
(C) Mucor has biflagellate zoospores
(D) Haploid endosperm is typical feature of gymnosperms

124 AIPMT 2015

Choose the wrong statement

(A) Yeast is unicellular and useful in fermentation
(B) Penicillium is multicellular and produces antibiotics
(C) Neurospora is used in the study of biochemical genetics
(D) Morels and truffles are poisonous mushrooms

125 AIPMT 2015

In which group of organisms the cell walls form two thin overlapping shells which fit together?

(A) Slime moulds **(B)** Chrysophytes
(C) Euglenoids **(D)** Dinoflagellates

126 AIPMT 2015

Metagenesis refers to:

(A) Presence of a segmented body and parthenogenetic mode of reproduction
(B) Presence of different morphic forms
(C) Alternation of generation between asexual and sexual phases of an organism
(D) Occurrence of a drastic change in form during post-embryonic development

127 AIPMT 2015

Body having meshwork of cells, internal cavities lined with food filtering flagellated cells and indirect development are the characteristics of phylum:

(A) Protozoa **(B)** Coelenterata
(C) Porifera **(D)** Mollusca

128 AIPMT 2015

A jawless fish, which lays eggs in fresh water and whose ammocoetes larvae after metamorphosis return to the ocean is:

(A) Petromyzon **(B)** Eptatretus
(C) Myxine **(D)** Neomyxine

129 AIPMT 2015

The imperfect fungi which are decomposers of litter and help in mineral cycling belong to:

(A) Ascomycetes **(B)** Deuteromycetes
(C) Basidiomycetes **(D)** Phycomycetes

130 AIPMT 2015

Pick up the wrong statement

(A) Nuclear membrane is present in Monera
(B) Cell wall is absent in Animalia
(C) Protista have photosynthetic and heterotrophic modes of nutrition
(D) Some fungi are edible

131 AIPMT 2014

An alga which can be employed as food for human being is:

(A) Ulothrix **(B)** Chlorella
(C) Spirogyra **(D)** Polysiphonia

132 AIPMT 2014

Anoxygenic photosynthesis is characteristic of:

(A) Ulva **(B)** Rhodospirillum
(C) Spirogyra **(D)** Chlamydomonas

133 AIPMT 2014

The motile bacteria are able to move by

(A) Fimbriae **(B)** Flagella
(C) Cilia **(D)** Pili

134 AIPMT 2014

Which of the following shows coiled RNA strand and capsomeres?

(A) Polio virus **(B)** Tobacco mosaic virus
(C) Measles virus **(D)** Retrovirus

135 AIPMT 2014

Planaria possesses high capacity of

(A) metamorphosis **(B)** regeneration
(C) alternation of generation **(D)** bioluminescence

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136 AIPMT 2014

Which one of the following shows isogamy with non-flagellated gametes?

(A) Sargassum **(B)** Ectocarpus
(C) Ulothrix **(D)** Spirogyra

137 AIPMT 2014

Viruses have

(A) DNA enclosed in a protein coat **(B)** prokaryotic nucleus
(C) single chromosome **(D)** both DNA and RNA

138 AIPMT 2014

Which one of the following living organisms completely lacks a cell wall?

(A) Cyanobacteria **(B)** Sea-fan (Gorgonia)
(C) Saccharomyces **(D)** Blue-green algae

139 AIPMT 2014

Which of the following is responsible for peat formation?

(A) Marchantia **(B)** Riccia
(C) Funaria **(D)** Sphagnum

140 AIPMT 2014

A location with luxuriant growth of lichens on the trees indicates that the

(A) trees are very healthy **(B)** trees are heavily infested
(C) location is highly polluted **(D)** location is not polluted

141 AIPMT 2014

Select the taxon mentioned that represents both marine and fresh water species.

(A) Echinoderms **(B)** Ctenophora
(C) Cephalochordata **(D)** Cnidaria

142 AIPMT 2014

Which one of the following is wrong about Chara?

(A) Globule is male reproductive structure.
(B) Upper oogonium and lower round antheridium.
(C) Globule and nucule present on same plant.
(D) Upper antheridium and lower oogonium.

143 AIPMT 2014

Male gametophyte with least number of cells is present in:

(A) Pinus **(B)** Pteris
(C) Funaria **(D)** Lilium

144 AIPMT 2014

Archaebacteria differ from eubacteria in:

(A) mode of reproduction **(B)** cell membrane structure
(C) mode of nutrition **(D)** cell shape

145 AIPMT 2014

Which one of the following fungi contains hallucinogens?

(A) Ustilago sp. **(B)** Morchella esculenta
(C) Amanita muscaria **(D)** Neurospora sp.

146 AIPMT 2014

A marine cartilaginous fish that can produce electric current is:

(A) Pristis **(B)** Torpedo
(C) Trygon **(D)** Scoliodon

147 AIPMT 2014

Five kingdom system of classification suggested by R.H. Whittaker is NOT based on

(A) Presence or absence of a well-defined nucleus
(B) Mode of reproduction
(C) Mode of nutrition
(D) Complexity of body organization

148 NEET 2013

Which group of animals belong to the same phylum?

(A) Earthworm, Pinworm, Tapeworm
(B) Prawn, Scorpion, Locusta
(C) Sponge, Sea anemone, Starfish
(D) Malarial parasite, Amoeba, Mosquito

149 NEET 2013

Isogamous condition with non-flagellated gametes is found in

(A) Spirogyra **(B)** Volvox
(C) Fucus **(D)** Chlamydomonas

150 NEET 2013

Pigment-containing membranous extensions in some cyanobacteria are:

(A) Basal bodies **(B)** Pneumatophores
(C) Chromatophores **(D)** Heterocysts

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151 NEET 2013

Match the name of the animal in Column I with one characteristic in Column II and the phylum/class in Column III to which it belongs. Which row is correctly matched?

Column I	Column II	Column III
(1) Ichthyophis	terrestrial	Reptilia
(2) Limulus	body covered by chitinous exoskeleton	Pisces
(3) Adamsia	radially symmetrical	Porifera
(4) Petromyzon	ectoparasite	Cyclostomata

	Column I	Column II	Column III
(1)	Ichthyophis	terrestrial	Reptilia
(2)	Limulus	body covered by chitinous exoskeleton	Pisces
(3)	Adamsia	radially symmetrical	Porifera
(4)	Petromyzon	ectoparasite	Cyclostomata

NEET Jeenius

(A) Ichthyophis - terrestrial - Reptilia
(B) Limulus - body covered by chitinous exoskeleton - Pisces
(C) Adamsia - radially symmetrical - Porifera
(D) Petromyzon - ectoparasite - Cyclostomata

152 NEET 2013

Select the wrong statement:

(A) Anisogametes differ either in structure, function or behaviour
(B) In Oomycetes female gamete is smaller and motile, while male gamete is larger and non-motile
(C) Chlamydomonas exhibits both isogamy and anisogamy and Fucus shows oogamy
(D) Isogametes are similar in structure, function and behaviour

153 NEET 2013

Monoecious plant of Chara shows the occurrence of:

(A) Stamen and carpel on the same plant
(B) Upper antheridium and lower oogonium on the same plant
(C) Upper oogonium and lower antheridium on the same plant
(D) Antheridiophore and archegoniophore on the same plant

154 NEET 2013

Besides paddy fields, cyanobacteria are also found inside vegetative part of:

(A) Cycas **(B)** Equisetum
(C) Psilotum **(D)** Pinus

155 NEET 2013

Read the following statements (A-E) and answer the question which follows them.

(A) In liverworts, mosses, and ferns gametophytes are free-living

(B) Gymnosperms and some ferns are heterosperms

(C) Sexual reproduction in Fucus, Volvox and Albugo is oogamous

(D) The sporophyte in liverworts is more elaborate than that in mosses

(E) Both Pinus and Marchantia are dioecious

How many of the above statements are correct?

(A) Two **(B)** Three
(C) Four **(D)** One

156 NEET 2013 · ASSERTION–REASON

Which of the following are likely to be present in deep sea water?

1. Eubacteria
2. Blue-green algae
3. Saprophytic fungi
4. Archaebacteria

(A) 1 and 2 only **(B)** 1, 3 and 4 only
(C) 2 and 4 only **(D)** All of the above

157 NEET 2013

Which of the following are correctly matched with respect to their taxonomic classification?

(A) Centipede, millipede, spider, scorpion - Insecta
(B) House fly, butterfly, tsetse fly, silverfish - Insecta
(C) Spiny anteater, sea urchin, sea cucumber - Echinodermata
(D) Flying fish, cuttle fish, silverfish - Pisces

158 NEET 2013

Which one of the following is not a correct statement?

(A) Botanical Gardens have collection of living plants for reference.
(B) A museum has collection of photographs of plants and animals.
(C) Key is taxonomic aid for identification of specimens.
(D) Herbarium houses dried, pressed and preserved plant specimens.

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159 NEET 2013

One of the representatives of phylum Arthropoda is:

(A) Silverfish **(B)** Pufferfish
(C) Flying fish **(D)** Cuttlefish

160 AIPMT 2012

Maximum nutritional diversity is found in the group

(A) Fungi **(B)** Animalia
(C) Monera **(D)** Plantae

161 AIPMT 2012

Cycas and Adiantum resemble each other in having

(A) Seeds **(B)** Motile sperms
(C) Cambium **(D)** Vessels

162 AIPMT 2012

The most abundant prokaryotes helpful to humans in making curd from milk and in production of antibiotics are the ones categorized as

(A) Cyanobacteria **(B)** Archaebacteria
(C) Chemosynthetic autotrophs **(D)** Heterotrophic bacteria

163 AIPMT 2012

Which one of the following is a correct statement?

(A) Pteridophyte gametophyte has a protonemal and leafy stage
(B) In gymnosperms female gametophyte is free-living
(C) Antheridiophores and protonema are present in pteridophytes
(D) Origin of seed habit can be traced in pteridophytes

164 AIPMT 2012

The cyanobacteria are also referred to as

(A) Protists **(B)** Golden algae
(C) Slime moulds **(D)** Blue-green algae

165 AIPMT 2012

The highest number of species in the world is represented by

(A) Fungi **(B)** Mosses
(C) Algae **(D)** Lichens

166 AIPMT 2012

In which one of the following, the genus name, its two characters and its phylum are not correctly matched, whereas the remaining three are correct?

(a) Pila: Body segmented; Mouth with radula; Phylum Mollusca
(b) Asterias: Spiny skinned; Water vascular system; Phylum Echinodermata
(c) Sycon: Pore bearing; Canal system; Phylum Porifera
(d) Periplaneta: Jointed appendages; Chitinous exoskeleton; Phylum Arthropoda

	Genus Name		Two Characters	Phylum
(a)	Pila	(i) (ii)	Body segmented Mouth with Radula	Mollusca
(b)	Asterias	(i) (ii)	Spiny skinned Water vascular system	Echinodermata
(c)	Sycon	(i) (ii)	Pore bearing Canal system	Porifera
(d)	Periplaneta	(i) (ii)	Jointed appendages Chitinous exoskeleton	Arthropoda

NEET Jeenius

(A) (a) **(B)** (b)
(C) (c) **(D)** (d)

167 AIPMT 2012

Which statement is wrong for viruses?

(A) All are parasites
(B) All of them have helical symmetry
(C) They have the ability to synthesize nucleic acids and proteins
(D) Antibiotics have no effect on them

168 AIPMT 2012

Nuclear membrane is absent in

(A) Penicillium **(B)** Agaricus
(C) Volvox **(D)** Nostoc

169 AIPMT 2012

Which one of the following is common to multicellular fungi, filamentous algae and protonema of mosses?

(A) Diplontic life cycle **(B)** Members of kingdom-Plantae
(C) Mode of nutrition **(D)** Multiplication by fragmentation

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170 AIPMT 2012

Which one single organism or the pair of organisms is correctly assigned to its or their named taxonomic group?

(A) Paramecium and Plasmodium belong to the same kingdom as that of Penicillium
(B) Lichen is a composite organism formed from the symbiotic association of an algae and a protozoan
(C) Yeast is used in making bread and brew is a fungus
(D) Nostoc and Anabaena are examples of Protista

171 AIPMT 2012

Gymnosperms are also called soft wood spermatophytes because they lack

(A) Cambium **(B)** Phloem fibres
(C) Thick-walled tracheids **(D)** Xylem fibres

172 AIPMT 2011

A prokaryotic autotrophic nitrogen-fixing symbiont is found in

(A) Cycas **(B)** Cicer
(C) Pisum **(D)** Alnus

173 AIPMT 2011

The gametophyte is not an independent, free-living generation in

(A) Adiantum **(B)** Marchantia
(C) Pinus **(D)** Polytrichum

174 AIPMT 2011

Compared with the gametophytes of the bryophytes, the gametophytes of vascular plants tend to be

(A) larger but to have smaller sex organs
(B) larger and to have large sex organs
(C) smaller and to have smaller sex organs
(D) smaller but to have larger sex organs

175 AIPMT 2011

Organisms called Methanogens are most abundant in a

(A) cattle yard **(B)** polluted stream
(C) hot spring **(D)** sulphur rock

176 AIPMT 2011

Mannitol is a sugar alcohol. It is stored food in

(A) Fucus **(B)** Gracillaria
(C) Chara **(D)** Porphyra

177 AIPMT 2011

What will you look for to identify the sex of the following? Select the correct match.

(A) Male frog — a copulatory pad on the first digit of the hind limb.
(B) Female cockroach — anal cerci
(C) Male shark — claspers borne on pelvic fins
(D) Female Ascaris — sharply curved posterior end

178 AIPMT 2011

In eubacteria, a cellular component that resembles eukaryotic cells is

(A) nucleus **(B)** ribosomes
(C) cell wall **(D)** plasma membrane

179 AIPMT 2011

In which one of the following are the genus name, its two characters and its class/phylum correctly matched?

Genus	Two Characters	Class/phylum
(a) Salman dra	(i) A tympanum represents ear (ii) Fertilisation is external	Amphibia
(b) Pteropus	(i) Skin possesses hair (ii) Oviparous	Mammalia
(c) Aurelia	(i) Cnidobles (ii) organ leval of Organization	Coelenterata
(d) Ascaris	(i) Body segmented (ii) Males and Female distinct	Annelida

NEET Jeenius

(A) Salamandra: (i) A tympanum represents ear (ii) Fertilisation is external; Class/phylum: Amphibia
(B) Pteropus: (i) Skin possesses hair (ii) Oviparous; Class/phylum: Mammalia
(C) Aurelia: (i) Cnidoblasts (ii) Organ level of organization; Class/phylum: Coelenterata
(D) Ascaris: (i) Body segmented (ii) Males and females distinct; Class/phylum: Annelida

180 AIPMT 2011

Which one of the following groups of animals is correctly matched with its one characteristic feature without even a single exception?

(A) Chordata — possess a mouth provided with an upper and a lower jaw
(B) Chondrichthyes — possess cartilaginous endoskeleton
(C) Mammalia — give birth to young ones
(D) Reptilia — possess 3-chambered heart with one incompletely divided ventricle

181 AIPMT 2011

Which one of the following is wrongly matched?

(A) Puccinia - Smut **(B)** Root Exarch - protoxylem
(C) Cassia - Imbricate aestivation **(D)** Root pressure - Guttation

182 AIPMT 2011

Archegoniophore is present in

(A) Chara **(B)** Adiantum
(C) Funaria **(D)** Marchantia

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183 AIPMT 2011

Which one of the following animals is correctly matched with its particular named taxonomic category?

(A) Cuttlefish — Mollusca, a class
(B) Humans — Primate, the family
(C) Housefly — Musca, an order
(D) Tiger — Tigris, the species

184 AIPMT 2010

One example of animals having a single opening to the outside that serves both as mouth as well as anus is

(A) Octopus
(B) Asterias
(C) Ascidia
(D) Fasciola

185 AIPMT 2010

The chief water conducting elements of xylem in gymnosperms are

(A) vessels
(B) fibres
(C) transfusion tissue
(D) tracheids

186 AIPMT 2010

Single-celled eukaryotes are included in

(A) Protista
(B) Fungi
(C) Archaea
(D) Monera

187 AIPMT 2010

Male and female gametophytes are independent and free-living in

(A) Mustard
(B) Castor
(C) Pinus
(D) Sphagnum

188 AIPMT 2010

Which one of the following statements about all the four of Spongilla, leech, dolphin and penguin is correct?

(A) Penguin is homoiothermic while remaining three are poikilothermic
(B) Leech is a fresh water form while others are marine
(C) Spongilla has special collared cells called choanocytes, not found in the remaining three
(D) All are bilaterally symmetrical

189 AIPMT 2010

Which one of the following kinds of animals are triploblastic?

(A) Flat worms
(B) Sponges
(C) Ctenophores
(D) Corals

190 AIPMT 2010

Which one of the following statements about certain given animals is correct?

(A) Roundworms (Achelminthes) are pseudocoelomates
(B) Molluscs are acoelomates
(C) Insects are pseudocoelomates
(D) Flat worms (Platyhelminthes) are coelomates

191 AIPMT 2010

Some hyperthermophilic organisms that grow in highly acidic (pH 2) habitats belong to the two groups called

(A) eubacteria and archaea
(B) cyanobacteria and diatoms
(C) protists and mosses
(D) liverworts and yeasts

192 AIPMT 2010

Infectious proteins are present in

(A) geminiviruses
(B) prions
(C) viroids
(D) satellite viruses

193 AIPMT 2009

Peripatus is a connecting link between

(A) Ctenophora and Platyhelminthes
(B) Mollusca and Echinodermata
(C) Annelida and Arthropoda
(D) Coelenterata and Porifera

194 AIPMT 2009

Which one of the following groups of animals is bilaterally symmetrical and triploblastic?

(A) Coelenterates (cnidarians)
(B) Aschelminthes (roundworms)
(C) Ctenophores
(D) Sponges

195 AIPMT 2009

Which one of the following has haplontic life cycle?

(A) Funaria
(B) Polytrichum
(C) Ustilago
(D) wheat

196 AIPMT 2009

Oxygenic photosynthesis occurs in

(A) Chromatium
(B) Oscillatoria
(C) Rhodospirillum
(D) Chlorobium

197 AIPMT 2009

Which one of the following plants is monoecious?

(A) Marchantia
(B) Pinus
(C) Cycas
(D) Papaya

198 AIPMT 2009

Phylogenetic system of classification is based on

(A) evolutionary relationships
(B) morphological features
(C) chemical constituents
(D) floral characters

199 AIPMT 2009

Mannitol is the stored food in

(A) Chara
(B) Porphyra
(C) Fucus
(D) Gracillaria

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200 AIPMT 2009

Which one is the wrong pairing for the disease and its causal organism?

(A) Late blight of potato : Alternaria solani
(B) Black rust of wheat : Puccinia graminis
(C) Loose smut of wheat : Ustilago nuda
(D) Root-knot of vegetables : Meloidogyne sp.

201 AIPMT 2009

Which one of the following is a vascular cryptogam?

(A) Equisetum **(B)** Ginkgo
(C) Marchantia **(D)** Cedrus

202 AIPMT 2009

Which one of the following is considered important in the development of seed habit?

(A) Dependent sporophyte **(B)** Heterospory
(C) Haplontic life cycle **(D)** Free-living gametophyte

203 AIPMT 2009

T.O. Diener discovered a

(A) free infectious RNA **(B)** free infectious DNA
(C) infectious protein **(D)** bacteriophage

204 AIPMT 2008

Which one of the following in birds indicates their reptilian ancestry?

(A) Scales on their hind limbs
(B) Four chambered heart
(C) Two special chambers, crop and gizzard, in their digestive tract
(D) Eggs with a calcareous shell

205 AIPMT 2008

Which one of the following is heterosporous?

(A) Dryopteris **(B)** Salvinia
(C) Adiantum **(D)** Equisetum

206 AIPMT 2008

Cellulose is the major component of cell walls of

(A) Pythium **(B)** Xanthomonas
(C) Pseudomonas **(D)** Saccharomyces

207 AIPMT 2008

Bacterial leaf blight of rice is caused by a species of

(A) Xanthomonas **(B)** Pseudomonas
(C) Alternaria **(D)** Erwinia

208 AIPMT 2008

Select one of the following pairs of important features distinguishing Gnetum from Cycas and Pinus and showing affinities with angiosperms.

(A) Absence of resin duct and leaf venation
(B) Presence of vessel elements and absence of archegonia
(C) Perianth and two integuments
(D) Embryo development and apical meristem

209 AIPMT 2008

Thermococcus, Methanococcus and Methanobacterium exemplify

(A) Archaebacteria that contain protein homologous to eukaryotic core histones
(B) Archaebacteria that lack any histones resembling those found in eukaryotes but whose DNA is negatively supercoiled
(C) Bacteria whose DNA is relaxed or positively supercoiled but which have a cytoskeleton as well as mitochondria
(D) Bacteria that contain a cytoskeleton and ribosomes

210 AIPMT 2008

Ascaris is characterized by

(A) absence of true coelom but presence of metamerism
(B) presence of neither true coelom nor metamerism
(C) presence of true coelom but absence of metamerism
(D) presence of true coelom and metamerism (metamerisation)

211 AIPMT 2008

Which one of the following groups of three animals each is correctly matched with their one characteristic morphological feature?

(A) Liver fluke, sea anemone, sea cucumber — Bilateral symmetry
(B) Centipede, prawn, sea urchin — Jointed appendages
(C) Scorpion, spider, cockroach — Ventral solid central nervous system
(D) Cockroach, locust, Taenia — Metameric segmentation

212 AIPMT 2007

Flagellated male gametes are present in all the three of which one of the following sets?

(A) Anthoceros, Funaria and Spirogyra **(B)** Zygnema, Saprolegnia and Hydrilla
(C) Fucus, Marsilea and Calotropis **(D)** Riccia, Dryopteris and Cycas

213 AIPMT 2007

Which of the following is a slime mould?

(A) Rhizopus **(B)** Physarum
(C) Thiobacillus **(D)** Anabaena

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214 AIPMT 2007

Ergot of rye is caused by a species of:

(A) Phytophthora **(B)** Uncinula
(C) Ustilago **(D)** Claviceps

215 AIPMT 2007

In gymnosperms, the pollen chamber represents:

(A) a cell in the pollen grain in which the sperms are formed
(B) a cavity in the ovule in which pollen grains are stored after pollination
(C) an opening in the megagametophyte through which the pollen tube approaches the egg
(D) the microsporangium in which pollen grains develop

216 AIPMT 2007

In the prothallus of a vascular cryptogam, the antherozoids and eggs mature at different times. As a result:

(A) there is no change in success rate of fertilization
(B) there is high degree of sterility
(C) one can conclude that the plant is apomictic
(D) self fertilization is prevented

217 AIPMT 2007

What is common between parrot, platypus and kangaroo?

(A) Homeothermy **(B)** Toothless jaws
(C) Functional post-anal tail **(D)** Oviparity

218 AIPMT 2007

Two plants can be conclusively said to belong to the same species if they:

(A) can reproduce freely with each other and form seeds
(B) have more than 90 per cent similar genes
(C) look similar and possess identical secondary metabolites
(D) have same number of chromosomes

219 AIPMT 2007

Spore dissemination in some liverworts is aided by:

(A) elaters **(B)** indusium
(C) calypatra **(D)** peristome teeth

220 AIPMT 2007

Which one of the following is a matching pair of a body feature and the animal possessing it?

(A) Post-anal-tail - Octopus
(B) Ventral Central nervous system - Leech
(C) Pharyngeal gill slits absent in embryo - Chamaeleon
(D) Ventral heart - Scorpion

221 AIPMT 2007

Which of the following pairs are correctly matched?

Animals - Morphological features
A. Crocodile - 4-chambered heart
B. Sea urchin - Parapodia
C. Obelia - Metagenesis
D. Lemur - Thecodont

(A) A, C and D **(B)** B, C and D
(C) Only A and D **(D)** Only A and B

222 AIPMT 2007

What is true about Nereis, Scorpion, Cockroach and Silver fish?

(A) They all have jointed paired appendages
(B) They all possess dorsal heart
(C) None of them is aquatic
(D) They all belong to the same phylum

223 AIPMT 2007

Which one of the following statements about mycoplasma is wrong?

(A) They are also called PPLO **(B)** They are pleomorphic
(C) They are sensitive to penicillin **(D)** They cause disease in plants

224 AIPMT 2007

The living organisms can be unexceptionally distinguished from the non-living things on the basis of their ability for:

(A) responsiveness to touch
(B) interaction with the environment and progressive evolution
(C) reproduction
(D) growth and movement

225 AIPMT 2007

The biological organisation starts with:

(A) Submicroscopic molecular level **(B)** Cellular level
(C) Organismic level **(D)** Atomic level

226 AIPMT 2007

ICBN stands for:

(A) Indian Congress of Biological Names
(B) International Code of Botanical Nomenclature
(C) Indian Code of Botanical Nomenclature
(D) International Congress of Biological Names

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227 AIPMT 2007

If you are asked to classify the various algae into distinct groups, which of the following characters should you choose?

(A) Types of pigments present in the cell
(B) Nature of stored food materials in the cell
(C) Structural organisation of thallus
(D) Chemical compositions of the cell wall

228 AIPMT 2006

Moss peat is used as a packing material for sending flowers and live plants to distant places because:

(A) It is easily available
(B) It is hygroscopic
(C) It reduces transpiration
(D) It serves as a disinfectant

229 AIPMT 2006

The thalloid body of a slime mould (Myxomycetes) is known as:

(A) protonema
(B) Plasmodium
(C) fruiting body
(D) mycelium

230 AIPMT 2006

Conifers differ from grasses in the:

(A) production of seeds from ovules
(B) lack of xylem tracheids
(C) absence of pollen tubes
(D) formation of endosperm before fertilization

231 AIPMT 2006

The bacterium (Clostridium botulinum) that causes botulism is:

(A) a facultative anaerobe
(B) an obligate anaerobe
(C) a facultative aerobic
(D) an obligate aerobic

232 AIPMT 2006

In a moss the sporophyte:

(A) is partially parasitic on the gametophyte
(B) produces gametes that give rise to the gametophyte
(C) arises from a spore produced from the gametophyte
(D) manufactures food for itself, as well as for the gametophyte

233 AIPMT 2006

Which one of the following is a matching set of a phylum and its three examples?

(A) Cnidaria - Bonellia, Physalia, Aurelia
(B) Platyhelminthes - Planaria, Schistosoma, Enterobius
(C) Mollusca - Loligo, Teredo, Octopus
(D) Porifera - Spongilla, Euplectella, Pennatula

234 AIPMT 2006

Metameric segmentation is the characteristic of:

(A) Platyhelminthes and Arthropoda
(B) Echinodermata and Annelisa
(C) Annelida and Anthropoda
(D) Mollusca and Chordata

235 AIPMT 2006

What is common about Trypanosoma, Noctiluca, Monocystis and Giardia?

(A) These are all unicellular protists
(B) They have flagella
(C) They produce spores
(D) These are all parasites

236 AIPMT 2006

Which of the following environmental conditions are essential for optimum growth of Mucor on a piece of bread?

A) The temperature of about 25 °C
B) The temperature of about 5 °C
C) Relative humidity of about 5%
D) Relative humidity of about 95%
E) A shady place
F) A brightly illuminated place

Choose the answer from the following options:

(A) A, C and E only
(B) A, D and E only
(C) B, D and E only
(D) B, C and F only

237 AIPMT 2006

Which one of the following has an open circulatory system?

(A) Pheretima
(B) Periplaneta
(C) Hirudinaria
(D) Octopus

238 AIPMT 2006

Biradial symmetry and lack of cnidoblasts are the characteristics of:

(A) Starfish and sea anemone
(B) Ctenoplana and Beroe
(C) Aurelia and Paramecium
(D) Hydra and starfish

239 AIPMT 2006

Two common characters found in centipede, cockroach and crab are:

(A) Compound eyes and anal cerci
(B) Jointed legs and chitinous exoskeleton
(C) Green glands and tracheae
(D) Book lungs and antennae

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240 AIPMT 2005 · MATCHING

Match items in Column-I with those in Column-II.

Column-I:
A. Peritrichous flagellation
B. Living fossil
C. Rhizophore
D. Smallest flowering plant
E. Largest perennial alga

Column-II:
1. Ginkgo
2. Macrocystis
3. Escherichia coli
4. Selaginella
5. Wolffia

Select the correct answer from the following codes.

(A) A-2, B-1, C-3, D-4, E-5 **(B)** A-5, B-3, C-2, D-5, E-1
(C) A-1, B-2, C-5, D-3, E-2 **(D)** A-3, B-1, C-4, D-5, E-2

241 AIPMT 2005

Top-shaped multiciliate male gametes and the mature seed which bears only one embryo with two cotyledons, are characteristic features of:

(A) Polypetalous angiosperms **(B)** Gamopetalous angiosperms
(C) Conifers **(D)** Cycads

242 AIPMT 2005

From the following statements, select the wrong one.

(A) Millipedes have two pairs of appendages in each segment of the body.
(B) Prawn has two pairs of antennae.
(C) Animals belonging to phylum Porifera are exclusively marine.
(D) Nematocysts are characteristic of the phylum Cnidaria.

243 AIPMT 2005

Which one of the following characters is not typical of the class Mammalia?

(A) Seven cervical vertebrae **(B)** Thecodont dentition
(C) Ten pairs of cranial nerves **(D)** Alveolar lungs

244 AIPMT 2005

Barophilic prokaryotes:

(A) grow slowly in highly alkaline frozen lakes at high altitudes
(B) occur in water containing high concentrations of barium hydroxide
(C) grow and multiply in very deep marine sediments
(D) readily grown and divides in sea water enriched in any soluble salt of barium

245 AIPMT 2005

Auxospores and hormocysts are formed, respectively, by:

(A) several diatoms and a few cyanobacteria
(B) several cyanobacteria and several diatoms
(C) some diatoms and several cyanobacteria
(D) some cyanobacteria and many diatoms

246 AIPMT 2005

Ectophloic siphonostele is found in:

(A) Adiantum and Cucurbitaceae **(B)** Osmunda and Equisetum
(C) Marsilea and Botrychium **(D)** Dicksonia and maiden hair fern

247 AIPMT 2005

In contrast to annelids, the platyhelminths show:

(A) Radial symmetry **(B)** Presence of pseudocoel
(C) Bilateral symmetry **(D)** Absence of body cavity

248 AIPMT 2005

Which of the following unicellular organism has a macro-nucleus for trophic function and one or more micro-nuclei for reproduction?

(A) Euglena **(B)** Amoeba
(C) Paramecium **(D)** Trypanosoma

249 AIPMT 2005

There exists a close association between the alga and the fungus within a lichen. The fungus:

(A) fixes the atmospheric nitrogen for the alga
(B) provides protection, anchorage and absorption for the alga
(C) provides food for the alga
(D) releases oxygen for the alga

250 AIPMT 2004

The animals with bilateral symmetry in young stage and radial pentamerous symmetry in the adult stage belong to the phylum:

(A) Mollusca **(B)** Cnidaria
(C) Echinodermata **(D)** Annelida

251 AIPMT 2004

In Arthropoda, head and thorax are often fused to form cephalothorax, but in which one of the following classes is the body divided into head, thorax and abdomen?

(A) Myriapoda **(B)** Crustacea
(C) Arachnida and Crustacea **(D)** Insecta

252 AIPMT 2004

Angiosperms have dominated the land flora primarily because of their:

(A) Property of producing large number of seeds
(B) Nature of self pollination
(C) Domestication by man
(D) Power of adaptability in diverse habitat

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253 AIPMT 2004

Lichens are well known combination of an alga and a fungus where fungus has:

(A) An epiphytic relationship with the alga
(B) A parasitic relationship with the alga
(C) A symbiotic relationship with the alga
(D) A saprophytic relationship with the alga

254 AIPMT 2004

A free living nitrogen-fixing cyanobacterium which can also form symbiotic association with the water fern Azolla is:

(A) Chlorella **(B)** Nostoc
(C) Anabaena **(D)** Tolypothrix

255 AIPMT 2004

One of the following is a very unique feature of the mammalian body:

(A) Presence of diaphragm **(B)** Four chambered heart
(C) Rib cage **(D)** Homeothermy

256 AIPMT 2004

When a fresh water protozoan possessing a contractile vacuole is placed in a glass containing marine water, the vacuole will:

(A) Disappear **(B)** Increase in size
(C) Decrease in size **(D)** Increase in number

257 AIPMT 2004

Which one of the following is a living fossil?

(A) Moss **(B)** Saccharomyces
(C) Spirogyra **(D)** Cycas

258 AIPMT 2004

In oogamy, fertilization involves:

(A) A large non-motile female gamete and a small motile male gamete
(B) A large non-motile female gamete and a small non-motile male gamete
(C) A large motile female gamete and a small non-motile male gamete
(D) A small non-motile female gamete and a large motile male gamete

259 AIPMT 2004

Which of the following propagates through leaf-tip?

(A) Sprout-leaf plant **(B)** Marchantia
(C) Moss **(D)** Walking fern

260 AIPMT 2004

Phenetic classification of organisms is based on:

(A) The ancestral lineage of existing organisms
(B) Dendrogram based on DNA characteristics
(C) Sexual characteristics
(D) Observable characteristics of existing organisms

261 AIPMT 2004

Viruses that infect bacteria, multiply and cause their lysis are called:

(A) Lipolytic **(B)** Lytic
(C) Lysogenic **(D)** Lysozymes

262 AIPMT 2003

Viruses are no more "alive" than isolated chromosomes because:

(A) They require both RNA and DNA
(B) They both need food molecules
(C) They both require oxygen for respiration
(D) Both require the environment of a cell to replicate

263 AIPMT 2003

Which one of the following is a matching pair of an animal and a certain phenomenon it exhibits?

(A) Pheretima — Sexual dimorphism **(B)** Musca — Complete metamorphosis
(C) Chameleon — Mimicry **(D)** Taenia — Polymorphism

264 AIPMT 2003

During its life-cycle, Fasciola hepatica (liver fluke) infects its intermediate host and primary host at the following larval stage respectively:

(A) Redia and miracidium **(B)** Cercaria and redia
(C) Metacercaria and cercaria **(D)** Miracidium and metacercaria

265 AIPMT 2003

Sycon belongs to a group of animals, which are best described as:

(A) Unicellular or acellular
(B) Multicellular without any tissue organization
(C) Multicellular with a gastrovascular system
(D) Multicellular having tissue organization, but no body cavity

266 AIPMT 2003

Chromosomes in a bacterial cell can be 1–3 in number and:

(A) Are always circular
(B) Are always linear
(C) Can be either circular or linear, but never both within the same cell
(D) Can be circular as well as linear within the same cell

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267 AIPMT 2003

Biosystematics aims at:

(A) The classification of organisms based on broad morphological characters
(B) Delimiting various taxa of organism and establishing their relationships
(C) The classification of organisms based on their evolutionary history and establishing their phylogeny on the totality of various parameters from all fields of studies
(D) Identification and arrangement of organisms on the basis of cytological characteristics

268 AIPMT 2003

In which kingdom would you classify the archaea and nitrogen-fixing organism, if the five-kingdom system of classification is used?

(A) Plantae **(B)** Fungi
(C) Protista **(D)** Monera

269 AIPMT 2003

Which one pair of examples will correctly represent the grouping Spermatophyta according to one of the schemes of classifying plants?

(A) Acacia, Sugarcane **(B)** Pinus, Cycas
(C) Rhizopus, Triticum **(D)** Ginkgo, Pisum

270 AIPMT 2003

Plants reproducing by spores such as mosses and ferns are grouped under the general term:

(A) Cryptogams **(B)** Bryophytes
(C) Sporophytes **(D)** Thallophytes

271 AIPMT 2003

Chlorenchyma found in:

(A) Cytoplasm of Chlorella
(B) Mycelium of a green mould such as Aspergillus
(C) Spore capsule of a moss
(D) Pollen tube of Pinus

272 AIPMT 2003

Tobacco mosaic virus is a tubular filament of size:

(A) 300 × 10 nm **(B)** 300 × 5 nm
(C) 300 × 20 nm **(D)** 700 × 30 nm

273 AIPMT 2003

Which one of the following is categorised under living fossils?

(A) Pinus **(B)** Cycas
(C) Selaginella **(D)** Metasequoia

274 AIPMT 2003

Sexual reproduction in Spirogyra is an advanced feature because it shows:

(A) Different size of motile sex organs
(B) Same size of motile sex organs
(C) Morphologically different sex organs
(D) Physiologically differentiated sex organs

275 AIPMT 2003

Phenetic classification is based on:

(A) The ancestral lineage of existing organisms
(B) Observable characteristics of existing organisms
(C) Dendrograms based on DNA characteristics
(D) Sexual characteristics

276 AIPMT 2003

Which one of the following pairs of plants are not seed producers?

(A) Fern and Funaria **(B)** Funaria and Ficus
(C) Ficus and Chlamydomonas **(D)** Punica and Pinus

277 AIPMT 2003

Which one of the following statements about viruses is correct?

(A) Viruses possess their own metabolic system
(B) All viruses contain both RNA and DNA
(C) Viruses are obligate parasites
(D) Nucleic acid of virus is known as capsid

278 AIPMT 2003

Species are considered as:

(A) Real basic units of classification
(B) The lowest units of classification
(C) Artificial concept of human mind which cannot be defined in absolute terms
(D) Real units of classification devised by taxonomists

279 AIPMT 2003

Given below are four matchings of an animal and its kind of respiratory organ:
A. Silver fish — trachea
B. Scorpion — book lung
C. Sea squirt — pharyngeal gills
D. Dolphin — skin
The correct matchings are:

(A) A and D **(B)** A, B and C
(C) B and D **(D)** C and D

280 AIPMT 2003

The chief advantage of encystment to an Amoeba is:

(A) The ability to survive during adverse physical conditions
(B) The ability to live for some time without ingesting food
(C) Protection from parasites and predators
(D) The chance to get rid of accumulated waste products

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281 AIPMT 2002

Choose the correct sequence of stages of growth curve for bacteria.

(A) Lag, Log, Stationary, Decline phase
(B) Lag, Log, Stationary phase
(C) Stationary, Lag, Log, Decline phase
(D) Decline, Lag, Log phase

282 AIPMT 2002

Organisms which obtain energy by the oxidation of reduced inorganic compounds are called:

(A) Photo autotrophs **(B)** Chemo autotrophs
(C) Saprozoic **(D)** Coproheterotrophs

283 AIPMT 2002

Sequence of which of the following is used to know the phylogeny?

(A) mRNA **(B)** rRNA
(C) tRNA **(D)** DNA

284 AIPMT 2002

Which of the following plants produces seeds but not flowers?

(A) Maize **(B)** Mint
(C) Peepal **(D)** Pinus

285 AIPMT 2002

In five kingdom system, the main basis of classification is:

(A) Structure of nucleus **(B)** Nutrition
(C) Structure of cell wall **(D)** Asexual reproduction

286 AIPMT 2002

In protozoa like Amoeba and Paramecium, an organelle is found for osmoregulation. Which one is it?

(A) Contractile vacuole **(B)** Mitochondria
(C) Nucleus **(D)** Food vacuole

287 AIPMT 2002

In which of the following is notochord present in embryonic stage?

(A) All chordates **(B)** Some chordates
(C) Vertebrates **(D)** Non chordates

288 AIPMT 2002

In which of the following animals is a dimorphic nucleus found?

(A) Amoeba proteus **(B)** Trypanosoma gambiense
(C) Plasmodium vivax **(D)** Paramecium caudatum

289 AIPMT 2002

Choose the correct match: Bladderwort, sundew, Venus flytrap

(A) Nepenthes, Dionaea, Drosera **(B)** Nepenthes, Utricularia, Vanda
(C) Utricularia, Drosera, Dionaea **(D)** Dionaea, Trapa, Vanda

290 AIPMT 2002

In which animal are nerve cells present but brain is absent?

(A) Sponge **(B)** Earthworm
(C) Cockroach **(D)** Hydra

291 AIPMT 2002

In bacteria, plasmid is:

(A) Extra chromosomal material **(B)** Main DNA
(C) Non functional DNA **(D)** Repetitive gene

292 AIPMT 2001

In Hydra, waste material of food digestion and nitrogenous waste material are removed from:

(A) Mouth and mouth **(B)** Body wall and body wall
(C) Mouth and body wall **(D)** Mouth and tentacles

293 AIPMT 2001

In which of the following animal is post-anal tail found?

(A) Earthworm **(B)** Lower invertebrate
(C) Scorpion **(D)** Snake

294 AIPMT 2001

In which of the following is haemocyanin pigment found?

(A) Annelida **(B)** Echinodermata
(C) Insecta **(D)** Lower chordata

295 AIPMT 2001

What is true for photolithotrophs?

(A) Obtain energy from radiations and hydrogen from organic compounds
(B) Obtain energy from radiations and hydrogen from inorganic compounds
(C) Obtain energy from organic compounds
(D) Obtain energy from inorganic compounds

296 AIPMT 2001

Difference in Gram-positive and Gram-negative bacteria is due to:

(A) Cell wall **(B)** Cell membrane
(C) Ribosome **(D)** Cytoplasm

297 AIPMT 2001

Cauliflower mosaic virus contains:

(A) ss RNA **(B)** ds RNA
(C) ds DNA **(D)** ss DNA

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298 AIPMT 2001
What is true for Archaebacteria?
(A) All Halophiles (B) All photosynthetic
(C) All fossils (D) Oldest living beings

299 AIPMT 2001
Cycas have two cotyledons but are not included in angiosperms because of:
(A) Naked ovules (B) Seems like monocot
(C) Circinate ptyxis (D) Compound leaves

300 AIPMT 2001
Plant decomposers are:
(A) Monera and fungi (B) Fungi and plants
(C) Protista and Animalia

301 AIPMT 2001
What is true for cyanobacteria?
(A) Oxygenic with nitrogenase (B) Oxygenic without nitrogenase
(C) Non-oxygenic with nitrogenase (D) Non-oxygenic without nitrogenase

302 AIPMT 2001
Which of the following is less general in characters as compared to genus?
(A) Species (B) Division
(C) Class (D) Family

303 AIPMT 2001
Adhesive pad of fungi penetrate the host with the help of:
(A) Mechanical pressure and enzymes (B) Hooks and suckers
(C) Softening by enzymes (D) Only by mechanical pressure

304 AIPMT 2001
Which aquatic fern performs nitrogen fixation?
(A) Azolla (B) Nostoc
(C) Salvia (D) Salvinia

305 AIPMT 2001
During regeneration, modification of an organ to other organ is known as:
(A) Morphallogenesis (B) Epimorphosis
(C) Morphallaxis (D) Accretionary growth

306 AIPMT 2000
Enzymes not found in:
(A) Fungi (B) Algae
(C) Virus (D) Cyanobacteria

307 AIPMT 2000
Viruses are living, because:
(A) They multiply in host cells (B) Carry anaerobic respiration
(C) Carry metabolic activity (D) Cause infection

308 AIPMT 2000
What is true for Mammalia?
(A) Platypus is oviparous (B) Bats have feather
(C) Elephant is ovoviviparous (D) Diaphragm is absent in them

309 AIPMT 2000
Which of the following character is not found in all the chordates?
(A) Diaphragm (B) Coelom
(C) Pharyngeal gill slits (D) Dorsal nerve cord

310 AIPMT 2000
Which gland secretes odourous secretion in mammals?
(A) Bartholins (B) Prostate
(C) Anal gland (D) Liver-bile

311 AIPMT 2000
Plant group with largest ovule, largest tree, and largest gametes:
(A) Gymnosperm (B) Angiosperm
(C) Bryophyta (D) Pteridophyta

312 AIPMT 2000
In ferns, meiosis takes place at the time of:
(A) Spore formation
(B) Spore germination
(C) Gamete formation
(D) Antheridia and archegonia formation

313 AIPMT 2000
Similarity in Ascaris lumbricoides and Anopheles stephensi is:
(A) Sexual dimorphism (B) Metamerism
(C) Anaerobic respiration (D) Endoparasitism

314 AIPMT 2000
Black rust of wheat is caused by:
(A) Puccinia (B) Ustilago
(C) Albugo (D) Phytophthora

315 AIPMT 2000
Blastopore is the pore of:
(A) Archenteron (B) Blastocoel
(C) Coelom (D) A.C.

316 AIPMT 2000
Which of the following animals have scattered cells with cell–tissue grade organisation?
(A) Sponge (B) Hydra
(C) Liver fluke (D) Ascaris

317 AIPMT 2000
A student observed an alga with chlorophyll a, chlorophyll d and phycoerythrin. It should belong to:
(A) Phaeophyta (B) Rhodophyta
(C) Chlorophyta (D) Bacillariophyta

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318 AIPMT 2000

Stored food in fungi is:

(A) Starch **(B)** Proteins
(C) Glycogen **(D)** Chitin

319 AIPMT 2000

Living beings maintain continuity of life by:

(A) Adaptation
(B) DNA replication and its transfer in next generation
(C) RNA synthesis
(D) None of the above

Answer key · Diversity in Living World

1 B	2 D	3 3	4 B	5 2	6 D
7 C	8 C	9 A	10 D	11 A	12 D
13 A	14 C	15 A	16 A	17 D	18 A
19 C	20 A	21 D	22 A	23 D	24 C
25 D	26 C	27 C	28 D	29 B	30 C
31 D	32 D	33 C	34 B	35 A	36 B
37 B	38 D	39 A	40 B	41 B	42 A
43 A	44 A	45 C	46 D	47 A	48 C
49 D	50 A	51 B	52 C	53 B	54 B
55 B	56 D	57 C	58 C	59 D	60 C
61 C	62 B	63 D	64 B	65 B	66 C
67 A	68 D	69 B	70 A	71 D	72 A
73 B	74 A	75 D	76 B	77 D	78 A
79 B	80 D	81 B	82 D	83 B	84 D
85 3	86 C	87 A	88 B	89 C	90 D
91 B	92 B	93 C	94 A	95 A	96 A
97 D	98 C	99 D	100 C	101 A	102 C
103 D	104 D	105 B	106 A	107 D	108 D
109 D	110 C	111 B	112 D	113 B	114 C
115 C	116 A	117 D	118 C	119 A	120 B
121 C	122 C	123 C	124 D	125 B	126 C
127 C	128 A	129 B	130 A	131 B	132 B
133 B	134 B	135 B	136 D	137 A	138 B
139 D	140 D	141 D	142 D	143 D	144 B
145 C	146 B	147 A	148 B	149 A	150 C
151 D	152 B	153 C	154 A	155 B	156 B
157 B	158 B	159 A	160 C	161 B	162 D
163 D	164 D	165 A	166 A	167 B	168 D
169 D	170 C	171 D	172 A	173 C	174 C
175 A	176 A	177 C	178 D	179 A	180 B
181 A	182 D	183 D	184 D	185 D	186 A
187 D	188 C	189 A	190 A	191 A	192 B
193 C	194 B	195 C	196 B	197 B	198 A
199 C	200 A	201 A	202 B	203 A	204 A
205 B	206 A	207 A	208 B	209 A	210 B
211 C	212 D	213 B	214 D	215 B	216 D
217 A	218 A	219 A	220 B	221 A	222 B
223 C	224 B	225 A	226 B	227 A	228 B
229 B	230 D	231 B	232 A	233 C	234 C
235 A	236 B	237 B	238 B	239 B	240 D
241 D	242 C	243 C	244 C	245 C	246 B
247 D	248 C	249 B	250 C	251 D	252 D
253 C	254 C	255 A	256 A	257 D	258 A

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259 D	260 D	261 B	262 D	263 B	264 D
265 B	266 D	267 B	268 D	269 D	270 A
271 C	272 C	273 B	274 D	275 B	276 A
277 C	278 A	279 B	280 A	281 A	282 B
283 B	284 D	285 B	286 A	287 A	288 D
289 C	290 D	291 A	292 C	293 D	294 C
295 B	296 A	297 C	298 D	299 A	300 A
301 A	302 A	303 A	304 A	305 C	306 C
307 A	308 A	309 A	310 C	311 A	312 A
313 A	314 A	315 A	316 B	317 B	318 C
319 B					

Solutions · Diversity in Living World

1 **Answer: B** Ref 6707

Easy ~0.5 min Gymnosperms

The gymnosperms are plants in which the ovules are not enclosed by any ovary wall and remain exposed, both before and after fertilisation. *Pinus* is a gymnosperm. *Funaria* is a moss. *Selaginella* is a pteridophyte.

2 **Answer: D** Ref 6719

Medium ~0.5 min Binomial Nomenclature

According to universal rules of nomenclature, the first word denoting the genus starts with a capital letter while the second component denotes the specific epithet and starts with a small letter. Therefore, the statement that the first word represents the specific epithet and the second denotes the genus is not true.

3 **Answer: 3** Ref 6747

Medium ~0.5 min Five Kingdom Classification

The main criteria for five kingdom classification used by R.H. Whittaker includes cell structure, body organization, mode of nutrition, reproduction and phylogenetic relationships. Therefore, the correct set of criteria from the given options is A (Cell structure), B (Body organization), D (Reproduction), and E (Phylogenetic relationships).

4 **Answer: B** Ref 6762

Medium ~1 min Cyclostomata

Petromyzon sp. have cartilaginous endoskeleton. They have circular sucking mouth. They are ectoparasites on some fishes. Their body is devoid of scales and paired fins. They have 7 pairs (6-15 pairs) of gill slits.

Scoliodon and Exocoetus are not parasites.

5 **Answer: 2** Ref 6769

Medium ~1 min Classification of Animals

Let's evaluate each statement:

A. Digestive system in Platyhelminthes is incomplete. → Correct. Platyhelminthes have an incomplete digestive system.

B. Bilateral symmetry is a characteristic feature of adult Echinoderms. → Incorrect. Bilateral symmetry is a characteristic feature of larvae of echinoderms. In adult echinoderms, radial symmetry is seen.

C. Pseudocoelom is possessed by Aschelminthes. → Correct. Aschelminthes are characterised by the presence of pseudocoelom.

D. Notochord is persistent throughout life in the class Chondrichthyes. → Correct. Notochord is persistent throughout life in the Chondrichthyes.

E. Members of class Reptilia maintain a constant body temperature. → Incorrect. Reptiles are cold-blooded organisms and thus, they cannot maintain a constant body temperature. Warm-blooded organisms like birds and mammals can maintain a constant body temperature.

Thus, the incorrect statements are B and E only.

6 **Answer: D** Ref 6770

Medium ~1 min Classification of Vertebrates

Flying fish (Exocoetus) is a marine bony fish. Angel fish (Pterophyllum) and fighting fish (Betta) are aquarium bony fishes. All three belong to the class Osteichthyes.

Option (1) is incorrect because Devil fish (Octopus) and Cuttlefish (Sepia) are molluscs, and Hag fish (Myxine) is a cyclostome.

Option (2) is incorrect because Saw fish (Pristis) and Dog fish (Scoliodon) are cartilaginous fishes (Chondrichthyes).

Option (3) is incorrect because Star fish (Asterias) is an echinoderm, Hagfish is a cyclostome, and Cuttlefish is a mollusc.

7 **Answer: C** Ref 6794

Medium ~0.5 min Aves (Birds)

Neophron is vulture and Psittacula is a parrot. Both perform flight. Struthio is ostrich and Aptenodytes is penguin. Both are flightless birds. In penguins, forelimbs are modified into flippers (paddle like structure) and are used for swimming. In ostriches, forelimbs are small and used for balance while running, not for swimming.

8 **Answer: C** Ref 7078

Medium ~1 min Symmetry in animals and Echinodermata

Statement I is correct because radial symmetry means the body can be divided into similar halves by any plane passing through the central axis. Statement II is incorrect because in Echinodermata, adults are radially symmetrical, but larvae are bilaterally symmetrical. Therefore, the correct option is Statement I is correct but Statement II is incorrect.

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9 **Answer: A** Ref 7079

Medium ~1 min Gymnosperms

Statement I is correct because in gymnosperms, the gametophytes are highly reduced and dependent on the sporophyte. The male gametophyte develops from the microspore inside the microsporangium, and the female gametophyte develops from the megaspore retained within the megasporangium of the ovule.

Statement II is also correct because gymnosperms bear naked seeds. Their ovules and later seeds are not enclosed within an ovary or fruit.

Therefore, both statements are correct.

10 **Answer: D** Ref 7080

Easy ~1 min Bacterial shapes

> **QUICK APPROACH** Recall the NCERT classification of bacteria based on their shapes: spherical, rod, comma, and spiral shapes. Start by matching the shapes with their corresponding bacterial names given in the list.

Bacteria are classified by shape as follows: spherical bacteria are called cocci, rod-shaped bacteria are called bacilli, comma-shaped bacteria are called vibrio, and spiral-shaped bacteria are called spirilla. Therefore the correct matching is A-II, B-IV, C-I, D-III.

11 **Answer: A** Ref 7086

Easy ~0.5 min Taxonomic Categories

The ascending order of taxonomic categories is:
Species → Genus → Family → Order → Class → Phylum → Kingdom.

So the correct sequence is:
(g), (a), (e), (c), (b), (d), (f)

Hence, option A is correct.

12 **Answer: D** Ref 7087

Medium ~1 min Taxonomical categories

We match each taxonomic rank correctly:

Family → Anacardiaceae
Genus → Mangifera
Class → Dicotyledonae
Phylum → Angiospermae
Order → Sapindales

So the correct matching is:

A-III
B-V
C-II
D-IV
E-I

Hence, option D is correct.

13 **Answer: A** Ref 7097

Medium ~1 min Fungi life cycle and reproduction

Plasmogamy means fusion of protoplasm between two gametes, so A matches II. Karyogamy means fusion of two nuclei, so B matches III. Haploid spores are generally produced after meiosis, so C matches I. Therefore, the correct matching is A-II, B-III, C-I.

14 **Answer: C** Ref 7100

Medium ~1 min Reptilia

Statement I is correct because the term Reptilia is derived from their creeping or crawling mode of locomotion.
Statement II is incorrect because most reptiles have a three-chambered heart, but crocodiles possess a four-chambered heart. Therefore, not all reptiles have a three-chambered heart.

15 **Answer: A** Ref 7106

Easy ~0.5 min Chemical composition of living organisms

In the human body, the major elements by percentage weight are in the order: oxygen > carbon > hydrogen > nitrogen. Oxygen contributes the highest percentage because water and many biomolecules contain large amounts of oxygen. Carbon is next as it forms the backbone of organic compounds. Hydrogen follows due to its presence in water and organic molecules. Nitrogen contributes less than these three and is mainly present in proteins and nucleic acids. Therefore, the descending order is (a), (b), (c), (d).

16 **Answer: A** Ref 6887

Easy Lichens

NCERT Class 11 Biology, Chapter 2 (Biological Classification) defines lichens as symbiotic associations between a fungus (mycobiont) and an alga or cyanobacterium (phycobiont). The fungal partner provides structural protection, absorbs water and minerals, while the algal partner performs photosynthesis to supply nutrients; this mutualism enables survival in harsh habitats like rocks and bark.

This matches the question exactly. Option [C] mycorrhiza refers to the symbiotic association of fungi with roots of higher plants (not algae), as noted separately in the same chapter and in plant physiology. [B] sponges belong to phylum Porifera (animal kingdom), while [D] chrysophytes are unicellular protists (diatoms and desmids) classified under Chrysophyta in Kingdom Protista.

A common error is conflating all fungal symbioses with mycorrhiza, ignoring the specific algal partner in lichens. The NCERT fact on lichen symbiosis directly settles the blank.

The correct option is [A] lichens.

17 **Answer: D** Ref 6890

Easy Nervous system in lower animals

The human central nervous system (CNS) comprising the brain and spinal cord is covered by three protective layers called meninges. As per NCERT Class 11 Biology, Chapter 21 (Neural Control and Coordination), these are the outer dura mater, middle arachnoid mater, and inner pia mater. These layers cushion the neural tissue, facilitate nutrient exchange, and protect against mechanical shocks.

In contrast, the pericardium is a double-layered serous membrane enclosing the heart, described in Chapter 18 (Body Fluids and Circulation) under the circulatory system. It has no structural or functional association with the CNS.

Options A, B, and C represent the meninges and are integral to CNS anatomy. Option D is unrelated, reflecting a common

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error of mixing protective membranes across organ systems (e.g., confusing meninges with pericardium or peritoneum). This is explicitly settled by the distinct organ-system descriptions in NCERT.

Thus, the correct option is **[D] Pericardium**.

18 **Answer: A** Ref 6900

Easy | Echinodermata - Symmetry

NCERT Biology Class 11, Morphology of Flowering Plants (Chapter 5), defines phyllotaxy as the pattern of arrangement of leaves on the stem or branch. This is a key morphological feature studied under diversity in external form of flowering plants. The three main types are alternate (e.g., mustard), opposite (e.g., guava), and whorled (e.g., Alstonia), which influence light interception and photosynthetic efficiency.

This term is derived from Greek 'phyllon' meaning leaf. In contrast, arrangement of flowers is described under inflorescence, fruits under types of fruits, and sepals under aestivation (valvate, twisted, imbricate, etc.). A common mistake is confusing phyllotaxy with floral whorls or inflorescence patterns due to superficial similarity in terminologies related to plant parts.

The concept falls within the broader Diversity in Living World theme as it aids in plant identification and classification based on vegetative characters. Thus, the blank is filled by leaves, making option [A] correct. Options B, C, and D represent distractors based on other plant morphology aspects but do not match the precise definition of phyllotaxy.

19 **Answer: C** Ref 6902

Medium | Phylum Chordata

NCERT Class 11 Biology, Chapter 4 (Animal Kingdom) defines radial symmetry precisely: any plane passing through the central axis of the body divides the organism into two identical halves. This matches Statement I exactly, confirming it is correct.

The same NCERT page on phylum Echinodermata states: 'The adult echinoderms are radially symmetrical but larvae are bilaterally symmetrical.' Larvae show bilateral symmetry before metamorphosis; therefore Statement II claiming both stages are radially symmetrical is factually wrong.

A common mistake (leading to option A) is recalling only adult radial symmetry in echinoderms while ignoring the bilateral larval stage explicitly highlighted in NCERT. Option B misremembers the radial symmetry definition itself, while D inverts the echinoderm fact.

Thus Statement I is correct but Statement II is incorrect. The answer is [C].

20 **Answer: A** Ref 6906

Medium | Gymnosperms

According to NCERT Class 11 Biology, Chapter 3 (Plant Kingdom), gymnosperms are heterosporous and produce microspores and megaspores within sporangia borne on sporophylls forming strobili. The text explicitly states: 'The male and the female gametophytes do not have an independent free-living existence. They remain within the sporangia retained on the sporophytes.' Microspores develop into highly reduced male gametophytes confined to the sporangia, while megaspores are retained within the megasporangium to form the female gametophyte. This confirms Statement I.

NCERT further notes that the ovules are borne on megasporophylls which later become naked seeds, i.e., 'seeds are not covered' by fruit (unlike angiosperms). The term gymnosperm itself means 'naked seeds.' Thus Statement II is also correct.

A common mistake is confusing gymnosperm gametophytes with the independent, free-living gametophytes of pteridophytes, or assuming all seeds are covered. Both statements align directly with NCERT, so the correct option is [A].

21 **Answer: D** Ref 6913

Easy | Plant groups and examples

QUICK APPROACH Start by recalling the hierarchical taxonomic categories and how the example Mangifera indica is classified in NCERT Class 11 Biology Chapter 1.

NCERT Class 11 Biology, Chapter 1 (The Living World), Table 1.1 gives the taxonomic categories for *Mangifera indica* (mango): Genus – *Mangifera*, Family – Anacardiaceae, Order – Sapindales, Class – Dicotyledonae, Division – Angiospermae. Although the text uses "Division", the question lists "Phylum" for Angiospermae (IV), which is acceptable in the given context.

Thus A (Family) matches III (Anacardiaceae), B (Genus) matches V (*Mangifera*), C (Class) matches II (Dicotyledonae), D (Phylum) matches IV (Angiospermae), and E (Order) matches I (Sapindales). This exact sequence is option [D].

Option [A] inverts family/order and class/phylum ranks. Option [B] wrongly assigns class to family and order to genus. Option [C] scrambles all ranks. A common error is confusing the hierarchical position of Dicotyledonae (class) with Angiospermae (division/phylum) or treating *Mangifera* as family instead of genus.

The NCERT hierarchy therefore unambiguously selects [D].

22 **Answer: A** Ref 6914

Easy | Taxonomic Hierarchy

NCERT Class 11 Biology, Chapter 1 (The Living World) states that taxonomic hierarchy is the arrangement of taxonomic categories in a definite order, from lower (species) to higher (kingdom). The standard ascending sequence is: **Species → Genus → Family → Order → Class → Phylum → Kingdom**.

Mapping the given labels: (g) Species, (a) Genus, (e) Family, (c) Order, (b) Class, (d) Phylum, (f) Kingdom yields exactly the sequence (g), (a), (e), (c), (b), (d), (f).

This matches **option [A]**. Option [B] incorrectly places phylum before species and kingdom before class. Option [C] disrupts the family–order–class sequence. Option [D] begins with kingdom, representing descending order instead.

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A common mistake is reversing ascending (lowest to highest rank) with descending order or swapping intermediate ranks such as family with order. The NCERT figure 1.1 and accompanying text explicitly list the hierarchy from species (lowest) to kingdom (highest), confirming the sequence without ambiguity.

Thus the correct choice is [A].

23 **Answer: D** Ref 6916

Medium | Phylum-wise examples and classification

QUICK APPROACH Recall the classification of vascular plants in NCERT, specifically the classes under pteridophytes which include Sphenopsida like Equisetum.

According to NCERT Class 11 Biology (Chapter 3, Plant Kingdom), pteridophytes are vascular cryptogams classified into four classes: **Psilopsida** (e.g., *Psilotum*), **Lycopsida** (e.g., *Lycopodium*, *Selaginella*), **Sphenopsida** (e.g., *Equisetum*), and **Pteropsida** (e.g., *Pteris*, *Dryopteris*). Sphenopsida members possess vascular tissues, produce spores via strobili, and lack seeds, fitting the defining traits of pteridophytes.

Bryophytes (option A) are non-vascular embryophytes (mosses, liverworts). Gymnosperms (C) and angiosperms (B) are spermatophytes producing seeds (naked or enclosed). A common error is mistaking *Equisetum*'s cone-like strobili for gymnosperm cones, but NCERT clearly groups it under pteridophytes as a seedless vascular plant.

Thus, the Sphenopsida class belongs to pteridophytes, option [D].

24 **Answer: C** Ref 6920

Easy | Taxonomic Categories

In the taxonomic hierarchy described in NCERT Class 11 Biology, Chapter 1 (The Living World, section on Taxonomic Categories), a genus is a rank that 'comprises a group of related species which has more characters in common in comparison to species of other genera'. For instance, the genus *Panthera* includes closely related species such as *Panthera leo* (lion), *Panthera tigris* (tiger), and *Panthera pardus* (leopard), all sharing common morphological features.

This grouping is higher than species (the basic unit representing an individual or interbreeding population) but lower than family. Option [A] confuses genus with the species level, which denotes a single type of organism. Option [B] misrepresents it as a mere population, ignoring the shared derived characters that define the taxon. Option [D] actually describes an order (a group of related families), a common error of shifting one rank higher in the hierarchy.

Thus, genus specifically represents a group of closely related species, confirming option [C].

25 **Answer: D** Ref 6921

Easy | Kingdom Monera and Fungi

NCERT Class 11 Biology, Chapter 2 (Biological Classification) clearly states that Kingdom Monera comprises all prokaryotes, which are organisms without a well-defined nucleus or membrane-bound cell organelles. This includes Bacteria, Blue-green algae (cyanobacteria, which perform oxygenic photosynthesis but lack chloroplasts), and Mycoplasma (the smallest living cells, often lacking a cell wall yet still prokaryotic). These are grouped together due to their 70S ribosomes, circular DNA, and absence of nuclear membrane.

In contrast, Fungi are placed in a separate kingdom. They are eukaryotic with a well-defined nucleus, 80S ribosomes, and membrane-bound organelles such as mitochondria. Their cell walls are chitinous, and they exhibit heterotrophic nutrition (saprophytic or parasitic). Whittaker's five-kingdom system, followed in NCERT, separates them from Monera precisely on the basis of cellular organisation (eukaryotic vs prokaryotic).

A common mistake is assuming that unicellular forms like yeast or the lack of chlorophyll in some fungi makes them prokaryotic; however, the presence of a true nucleus confirms their eukaryotic nature. Blue-green algae are sometimes confused with eukaryotic algae, but NCERT explicitly classifies them under Monera.

Thus, among the options, fungi is not a prokaryote. **Correct option: [D]**

26 **Answer: C** Ref 6925

Medium | Classification of Animals

NCERT Class 11 Biology, Chapter 4 (Animal Kingdom), states that the name Reptilia is derived from the Latin word *reptum*, which means 'to creep or crawl'. This directly supports Statement I, as the class name refers to their mode of locomotion.

The same NCERT text notes that reptiles are poikilothermic amniotes with a three-chambered heart, **but crocodiles have a four-chambered heart**. Therefore, Statement II claiming that *all* organisms belonging to Reptilia have a three-chambered heart is factually incorrect. This exception for crocodilians (order Crocodilia) is explicitly highlighted in the textbook to avoid overgeneralization.

A common mistake is assuming heart structure is uniform across Reptilia based on the majority (lizards, snakes, turtles), ignoring the avian-like four-chambered heart in crocodiles that separates oxygenated and deoxygenated blood. This distinction also relates to their closer evolutionary link with birds and mammals.

Hence, Statement I is correct while Statement II is incorrect. The answer is **[C]**.

27 **Answer: C** Ref 6927

Medium | Hemichordates and Chordates

NCERT Class 11 Biology, Chapter 4 (Animal Kingdom), explicitly lists the fundamental chordate characteristics under phylum Chordata: presence of a notochord (at least in some stage), a dorsal hollow nerve cord (CNS dorsal and tubular), paired pharyngeal gill slits (which develop into gills in aquatic forms), and a post-anal tail.

These features distinguish Chordata from other phyla like Hemichordata (which share some traits but lack a true notochord). Options A (notochord), B (dorsal CNS), and D (post-anal tail) directly match these NCERT criteria. Option C

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('Absence of gills') does not; chordates possess pharyngeal gill slits/gills at some life stage (e.g., in fishes, amphibian larvae, or embryonic humans). Absence would contradict the defining presence of these slits.

A common mistake is assuming adult terrestrial vertebrates lack gills, so 'absence' applies universally—this ignores the 'at some stage' clause in NCERT. Thus, C is not a chordate characteristic.

Correct option: C

28 **Answer: D** Ref 6938

Medium

NCERT Class 12 Biology, Chapter 3 (Human Reproduction) describes the male reproductive system as comprising a pair of testes with seminiferous tubules leading into the **rete testis**, a network of tubules inside the testis. From there, 10–12 **vasa efferentia** carry sperm to the **epididymis**, a highly coiled tube (head, body, tail) where sperm undergo maturation and gain motility before entering the vas deferens.

In contrast, the **infundibulum** is explicitly part of the female reproductive tract: it is the funnel-shaped, fimbriae-bearing end of the oviduct (fallopian tube) that receives the ovum released from the ovary (NCERT, p. 43). Thus, it has no role in the male system.

Options A, B and C are sequential components of the intratesticular and post-testicular duct system that transport and store spermatozoa; mistaking infundibulum for a male structure is a common error arising from confusing oviduct anatomy with the male excurrent ducts.

Therefore, the correct option is [D] Infundibulum.

29 **Answer: B** Ref 6939

Easy Taxonomic Hierarchy

The NCERT Class 12 Biology textbook (Chapter 15: Biodiversity and Conservation) cites specific species counts from the Amazonian rain forest to illustrate maximum biodiversity on Earth. It states there are **more than 1,25,000 species of invertebrates**, about **40,000 species of plants**, **3,000 species of fishes**, **1,300 species of birds**, and **427 species of mammals**.

Thus, the descending order is invertebrates (d) > plants (a) > fishes (c) > birds (b) > mammals (e). This matches option **[B]**.

A common mistake is reversing vertebrates with invertebrates or assuming birds outnumber fishes; the NCERT data explicitly lists fishes (3000) ahead of birds (1300). These figures highlight that species richness is highest among invertebrates, followed by plants, then the listed vertebrate groups. The exact hierarchy given in the text eliminates ambiguity in arranging (a)–(e).

30 **Answer: C** Ref 6941

Easy Kingdom Protista

In any ecosystem, organisms are grouped into trophic levels based on their feeding relationships, as outlined in NCERT Biology (Class 12, Ecosystem chapter). Producers (autotrophs like plants and algae) form the first trophic level. Primary consumers are those that feed **directly on producers**; these are **herbivores**.

Herbivores convert plant biomass into animal tissue, occupying the second trophic level in grazing food chains. NCERT explicitly states: "Herbivores are the primary consumers." This matches option [C].

Parasites ([A]) usually draw nutrition from living hosts across trophic levels and belong to parasitic food chains, not standard primary consumer roles. Predators ([B]) and carnivores ([D]) feed on other consumers (herbivores or smaller carnivores), placing them as secondary or tertiary consumers. A common error is assuming all heterotrophs are primary consumers, ignoring the direct link to producers.

Thus, only herbivores qualify as primary consumers in a food chain. The correct option is **[C]**.

31 **Answer: D** Ref 6950

Easy Gymnosperms

NCERT (Class 11, Morphology of Flowering Plants) states that seeds with persistent endosperm are albuminous (endospermic), while those in which endosperm is completely consumed during embryo development (food stored in cotyledons) are non-albuminous (exalbuminous). Cereals such as wheat, maize and barley are albuminous seeds with starchy endosperm that persists at maturity. In contrast, legumes such as pea have non-albuminous seeds; the endosperm is used up and cotyledons store the reserves.

Thus, out of the given options only pea produces non-albuminous seeds. The other three options are all cereals and share the common mistake of being misidentified as non-albuminous; NCERT explicitly lists them as albuminous.

The correct option is [D] Pea.

32 **Answer: D** Ref 6955

Medium Chordates and Vertebrates

NCERT Class 12 Biology, Chapter 7 (Evolution), clearly states that modern *Homo sapiens* arose in Africa and then migrated across continents, replacing other hominids. This directly refutes Statement I, which incorrectly claims origin in Australia. The text emphasises the 'Out of Africa' model supported by fossil and genetic evidence.

Statement II aligns with NCERT content: *Homo sapiens* appeared between 75,000 and 10,000 years ago during the ice age. The book notes that cave paintings and other artefacts from this period reflect their developed brain and language capabilities.

A common mistake is confusing the African origin with later migration routes or mixing up timelines with earlier hominids like *Homo erectus* (which appeared ~1.5 million years ago). The precise NCERT phrasing on both geography and chronology confirms Statement I is false while Statement II is accurate.

Thus, the most appropriate choice is option [D].

33 **Answer: C** Ref 6968

Easy Gymnosperms

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At ovulation the ovum leaves the Graafian follicle with its own non-cellular coat.

Step 1. The secondary oocyte released at ovulation is surrounded by a glycoprotein layer called the zona pellucida.

Step 2. Outside this layer lie a few layers of follicle cells, the corona radiata.

Step 3. The endometrium is the lining of the uterus. The chorion is an extra-embryonic membrane that forms after fertilisation. Neither covers the ovum at ovulation.

Answer: (C) zona pellucida

34 **Answer: B** Ref 4544

Medium ~1 min Body cavity and coelom

The animal has a body cavity in which mesodermal tissue is present only towards the body wall, but absent towards the alimentary canal. This means the body cavity is not completely lined by mesoderm. Such a body cavity is called a pseudocoelom, and the animal is pseudocoelomate. Acoelomates lack a body cavity. Schizocoelomates have a true coelom formed by splitting of mesoderm, so the cavity is completely lined by mesoderm. Spongocoel is the central cavity of sponges, not a true coelom.

COMMON TRAPS

- **Treating any observed cavity as a true coelom.** A true coelom must be completely lined by mesoderm on both the body-wall side and the alimentary-canal side. Here the explanation says "not completely lined by mesoderm," so it is a pseudocoelom. *Avoid it:* After identifying a cavity, check whether mesoderm is present on both boundaries of the cavity or only one side.
- **Missing the negative cue 'no mesodermal tissue towards the alimentary canal'.** In pseudocoelomates, mesoderm lines the body wall side but does not line the gut/alimentary canal side. This incomplete mesodermal lining is the deciding feature. *Avoid it:* Circle/underline contrast words like "but" and convert the line into a yes/no checklist: body wall mesoderm = yes; alimentary canal mesoderm = no.

REVISE Coelom classification using the exact lining criterion: no cavity, incomplete mesoderm lining, complete mesoderm lining. · Practice eliminating options by matching each phrase in the stem to one option: "observed a cavity" eliminates A; "no mesodermal tissue towards the alimentary canal" eliminates C; "spongocoel" belongs to Porifera, eliminating D.

35 **Answer: A** Ref 4545

Medium ~1 min Life cycle of pteridophytes

In pteridophytes, the diploid sporophyte produces spores by meiosis in spore mother cells. These spores germinate to form the gametophyte called prothallus. The prothallus develops sex organs, namely antheridia and archegonia. In the presence of water, motile antherozoids reach the archegonia, where fertilisation occurs. Hence, the correct sequence is: Meiosis in spore mother cells → Prothallus stage → Formation of archegonia and antheridia → Transfer of antherozoids to archegonia → Fertilisation.

36 **Answer: B** Ref 4550

Medium ~1 min Nitrogen fixation by bacteria and cyanobacteria

Azotobacter is a free-living nitrogen-fixing bacterium. Oscillatoria, Anabaena and Nostoc are cyanobacteria; Anabaena and Nostoc are well-known nitrogen fixers, and Oscillatoria can also fix nitrogen in many forms. Volvox is a green alga and does not fix atmospheric nitrogen. Therefore, only D, Volvox, cannot fix nitrogen.

37 **Answer: B** Ref 4562

Medium ~1 min Five Kingdom Classification by Whittaker

Whittaker classified organisms into five kingdoms: Monera, Protista, Fungi, Plantae and Animalia. The increasing order of complexity of body organization is: C represents Monera because they are prokaryotes with cell wall made of polysaccharides and amino acids. E represents Protista because they are eukaryotes with cellular level of organization. A represents Fungi because they are multicellular heterotrophs with cell wall made of chitin. D represents Plantae because they are eukaryotic autotrophs with tissue/organ level of organization. B represents Animalia because they are heterotrophs with tissue/organ/organ-system level of organization. Therefore, the correct sequence is C, E, A, D, B.

38 **Answer: D** Ref 4565

Easy ~0.5 min Cyclostomata

All living members of class Cyclostomata, such as Petromyzon and Myxine, are jawless vertebrates. They are generally ectoparasites on fishes, meaning they attach externally to the host and feed on body fluids. Hence, the correct answer is ectoparasite.

39 **Answer: A** Ref 4570

Medium ~1 min Chordata and Vertebrata

Assertion is true because Vertebrata is a subphylum under phylum Chordata. Hence, every vertebrate is a chordate. However, all chordates are not vertebrates because chordates also include non-vertebrate groups such as Urochordata and Cephalochordata.

Reason is also true. In vertebrates, the notochord is present during the embryonic stage and is later replaced by a cartilaginous or bony vertebral column in adults. This vertebral column is the key feature that separates vertebrates from other chordates.

Therefore, both Assertion and Reason are true, and Reason correctly explains the Assertion.

40 **Answer: B** Ref 4585

Easy ~1 min Plant groups and examples

Pteridophytes include Salvinia, which is a heterosporous aquatic fern. Bryophytes include Polytrichum, a moss. Angiosperms are flowering plants, and Salvia is an angiosperm. Gymnosperms include Ginkgo, a classic living gymnosperm. Therefore the correct matching is A-IV, B-III, C-I, D-II.

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COMMON TRAPS

- **Confusing Pteridophyte example Salvinia with Bryophyte example Polytrichum.** Salvinia is a pteridophyte: specifically a heterosporous aquatic fern. Polytrichum is a bryophyte: specifically a moss. *Avoid it:* Before using options, label each example by its key cue: Salvinia = fern = pteridophyte; Polytrichum = moss = bryophyte.
- **Reading Salvia as Salvinia due to similar spelling.** Salvia is a flowering angiosperm. Salvinia is an aquatic fern and therefore a pteridophyte. *Avoid it:* Underline the full endings: Salvia ends with '-ia' and is angiosperm; Salvinia contains '-vinia' and is pteridophyte.

REVISE NCERT examples groupwise: Bryophyta, Pteridophyta, Gymnosperms, Angiosperms. · Make a visual cue list for similar spellings: Salvia vs Salvinia.

41 **Answer: B** Ref 4587

Medium ~1 min Echinodermata - Water vascular system

The water vascular system is a characteristic feature of echinoderms. It helps mainly in locomotion through tube feet, capture and transport of food, and also contributes to respiration. Excretion is not a role of the water vascular system because echinoderms lack a specialized excretory system; excretion occurs mainly by diffusion through the body surface or tube feet. Digestion is also not performed by the water vascular system. Therefore, statements A and C are correct.

42 **Answer: A** Ref 4649

Easy ~0.5 min Reductionism in Biology

Reductionism refers to studying complex living organisms by reducing them into simpler components and understanding life processes through physical and chemical principles. Therefore, the physico-chemical approach to study and understand living organisms is called reductionism.

43 **Answer: A** Ref 4654

Easy ~0.5 min Reductionist Biology

Reductionist Biology is the approach in which living organisms or biological systems are understood by studying their smaller parts, such as organs, tissues, cells, organelles and molecules. Hence the correct answer is Reductionist Biology.

COMMON TRAPS

- **Equating 'complex biological systems' with Systems Biology.** Reductionist Biology studies smaller parts to understand the whole; Systems Biology studies interactions and the integrated behavior of the whole system. *Avoid it:* Underline the action phrase "reducing complex biological systems into simpler components"; if the method breaks a whole into parts, it is reductionist, not systems-level.
- **Ignoring the word 'reducing' and choosing a broad organism-level field.** Ecology studies organisms in relation to their environment; it does not primarily mean breaking organisms into organs, tissues, cells, organelles, and molecules. *Avoid it:* Before selecting, ask whether the option specifically explains the phrase "into simpler components".

REVISE Create a concise distinction chart for Reductionist Biology, Systems Biology, Taxonomy, and Ecology. · Practice identifying the action word in definition-based MCQs: reducing, classifying, interacting, integrating.

44 **Answer: A** Ref 4440

Medium ~1 min Chordata and Vertebrata

Assertion A is true. In vertebrates, the notochord is present during the embryonic stage and is replaced by a cartilaginous or bony vertebral column in the adult. Reason R is false because the correct statement is: all vertebrates are chordates, but all chordates are not vertebrates. Chordata includes Urochordata, Cephalochordata and Vertebrata, so vertebrates are only a subgroup of chordates.

COMMON TRAPS

- **Reversing the subset relation between chordates and vertebrates.** Chordata includes Urochordata, Cephalochordata, and Vertebrata; therefore Vertebrata is a subset of Chordata. *Avoid it:* Draw the hierarchy before judging R: Chordata → Vertebrata. If the larger group is Chordata, the statement "all chordates are vertebrates" cannot be true.
- **Thinking the assertion becomes false because adults lack notochord.** In vertebrates, the notochord is present embryonically and is later replaced by a cartilaginous or bony vertebral column. *Avoid it:* Underline stage words like "embryonic period" and "adult" before deciding true/false.

REVISE Memorise the hierarchy: Chordata includes Urochordata, Cephalochordata and Vertebrata. · Use Venn diagrams for taxonomy: Vertebrata inside Chordata.

45 **Answer: C** Ref 4415

Medium ~1 min Classification of Vertebrates

Carcharodon is a cartilaginous fish, so it belongs to Chondrichthyes. Myxine is a jawless vertebrate, so it belongs to Cyclostomata. Clarias is a bony fish, so it belongs to Osteichthyes. Ichthyophis is a limbless amphibian, so it belongs to Amphibia. Hence the correct matching is A-II, B-III, C-I, D-IV.

46 **Answer: D** Ref 4329

Medium ~0.5 min Gymnosperms - Vascular tissues

Gymnosperms generally lack vessels in their xylem and mainly possess tracheids for water conduction. Their phloem lacks sieve tubes and companion cells, but has sieve cells and albuminous cells. Therefore, vessels are not found in gymnosperms as per NCERT/NEET context.

47 **Answer: A** Ref 4340

Medium ~0.5 min Classification of Pteridophytes

The pair Sphenopsida - Adiantum is incorrect. Equisetum belongs to Sphenopsida, while Adiantum belongs to Pteropsida. The other pairs are correct: Dryopteris belongs to Pteropsida, Psilotum belongs to Psilopsida, and Selaginella belongs to Lycopsida.

48 **Answer: C** Ref 4372

Medium ~1 min Kingdom Protista and Modes of Nutrition

Euglenoids show mixotrophic nutrition: in the presence of sunlight they are photosynthetic, but in the absence of sunlight they behave like heterotrophs. So, A matches IV. Dinoflagellates are mostly marine and photosynthetic, so B matches III. Slime moulds are saprophytic protists, so C matches II. Plasmodium is a parasitic protozoan that causes malaria, so D matches I. Therefore, the correct matching is A-IV, B-III, C-II, D-I.

49 **Answer: D** Ref 4423

Medium ~1 min

Basis of Classification: Symmetry, Coelom and Germ Layers

The incorrect match is Platyhelminthes - Diploblastic organisation. Platyhelminthes are triploblastic animals because their body develops from three germ layers: ectoderm, mesoderm and endoderm. They are also acoelomate and

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bilaterally symmetrical. Annelids and arthropods show bilateral symmetry, sponges are considered acoelomate, and coelenterates and ctenophores show radial symmetry, so those matches are correct.

50 **Answer: A** Ref 6514

Medium ~1 min Bryophytes (Moss Life Cycle)

The predominant stage of the life cycle of a moss is the gametophyte which consists of two stages. The first stage is the protonema stage, which develops directly from a spore. Capsule of the sporophyte contains spore which gives rise to protonema. Thus, reason correctly explains the assertion.

51 **Answer: B** Ref 6544

Medium ~0.5 min Pteridophytes

Selaginella and Salvinia are heterosporous pteridophytes. They produce two different kinds of spores. Psilotum, Lycopodium and Equisetum are homosporous pteridophytes.

52 **Answer: C** Ref 6554

Medium ~1 min Gymnosperms

Assertion is correct but reason is false as in gymnosperms the pollen grains are released from the microsporangium and they are carried in air currents. They come in contact with the opening of the ovules borne on megasporophylls. The pollen tube carrying the male gametes grows towards archegonia in the ovules and discharge their contents near the mouth of the archegonia.

53 **Answer: B** Ref 6599

Medium ~0.5 min Symmetry in Animals

Option (2) is the correct answer because hemichordates are bilaterally symmetrical animals. Option (3) is not the answer because coelenterates are radially symmetrical organisms. Option (4) is not the answer because adult echinoderms are radially symmetrical in adult stage. Option (1) is not the answer because ctenophores are radially symmetrical organisms.

54 **Answer: B** Ref 6600

Medium ~1 min Chordates

Option (2) is the correct answer because statements B and C only are correct. The chordate characters are presence of closed circulatory system and presence of pharyngeal gill slits. Nerve cord is dorsal, hollow and single. Heart is ventral. They are triploblastic and coelomate.

55 **Answer: B** Ref 6604

Medium ~0.5 min Mammalian Characteristics

Option (2) is correct because presence of hairs, pinna and mammary glands are unique features of mammals. Options (1), (3) and (4) are not correct because monocondylic skull is present in reptiles and aves whereas mammals have dicondylic skull. Tympanic membrane is present in amphibians also, so it is not considered as unique feature. Indirect development is not seen in mammals.

56 **Answer: D** Ref 6313

Medium ~0.5 min Algae

Carrageen is a hydrocolloid (a gelatinous substance) obtained from the cell walls of red algae, which belong to the class Rhodophyceae. It is widely used as a thickening and stabilizing agent in food and other industries. Therefore, the correct answer is Rhodophyceae only.

57 **Answer: C** Ref 6322

Medium ~0.5 min Algae - Pigments and Reserve Food

The question asks for the incorrectly matched pair among algae and their reserve food materials or pigments.

• Volvox belongs to Chlorophyceae (green algae) and stores starch. This is correctly matched.
• Ectocarpus belongs to Phaeophyceae (brown algae) and contains the pigment fucoxanthin. This is correctly matched.
• Ulothrix belongs to Chlorophyceae (green algae) and stores starch, not mannitol. Mannitol is the reserve food material of Phaeophyceae (brown algae). Therefore, this is incorrectly matched.
• Porphyra belongs to Rhodophyceae (red algae) and stores Floridian starch. This is correctly matched.

Thus, option (3) Ulothrix – Mannitol is the incorrect match.

58 **Answer: C** Ref 6324

Medium ~0.5 min Nitrogen Fixation

Frankia is a genus of actinobacteria that forms nitrogen-fixing nodules on the roots of non-leguminous plants, particularly *Alnus* (alder trees). *Rhizobium* is associated with legumes, while *Beijerinckia* and *Rhodospirillum* are free-living nitrogen fixers.

59 **Answer: D** Ref 6343

Easy Arthropoda

The exoskeleton of arthropods is composed of chitin. Chitin is a polysaccharide, a polymer of N-acetylglucosamine. It provides structural support and protection. Glucosamine is a monomer of chitin, cutin is a waxy substance found in plant cuticles, and cellulose is the main component of plant cell walls.

60 **Answer: C** Ref 6357

Medium ~1 min Plant Life Cycles and Alternation of Generations

The life cycles of the given plants are as follows:

• Spirogyra: Dominant haploid free-living gametophyte. The sporophyte is represented only by the zygote.
• Fern: Dominant diploid sporophyte alternating with reduced gametophyte called prothallus.
• Funaria: Dominant haploid leafy gametophyte alternating with partially dependent multicellular sporophyte.
• Cycas: Dominant diploid sporophyte vascular plant, with highly reduced male or female gametophyte.

Thus, the correct matching is (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i).

61 **Answer: C** Ref 6364

Medium ~0.5 min Kingdom Fungi

Penicillium is a fungus that reproduces asexually by producing conidia. Conidia are non-motile spores formed on specialized hyphae called conidiophores. Buds are associated with yeast (*Saccharomyces*), zoospores are motile spores found in some algae and fungi (e.g., *Phycomycetes*), and gemmules are asexual reproductive structures found in sponges (Porifera). Therefore, the correct answer is conidia.

62 **Answer: B** Ref 6368

Medium ~1 min Chordates and Vertebrates

Assertion (A) states that all vertebrates are chordates but all chordates are not vertebrates. This is correct because vertebrates are a subphylum within the phylum Chordata, and other subphyla like Urochordata and Cephalochordata are chordates but not vertebrates.

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Reason (R) states that the notochord is replaced by the vertebral column in adult vertebrates. This is also correct, as during embryonic development in vertebrates, the notochord is replaced by the vertebral column.

Since (R) correctly explains why all chordates are not vertebrates (i.e., only those where the notochord is replaced by a vertebral column are vertebrates), both (A) and (R) are correct and (R) is the correct explanation of (A).

63 **Answer: D** Ref 6385

Medium ~1 min Kingdom Monera

Mycoplasma are the smallest living cells, measuring about 0.1 µm, and can pass through filters with pore size less than 1 micron. Hence, Statement I is correct. Mycoplasma are bacteria that completely lack a cell wall. Therefore, Statement II is incorrect.

64 **Answer: B** Ref 6386

Easy ~0.5 min Taxonomic Hierarchy

The correct ascending order of taxonomic categories in animals is: Kingdom → Phylum → Class → Order → Family → Genus → Species. This is the standard hierarchical classification system used in zoology.

65 **Answer: B** Ref 6408

Medium ~0.5 min Kingdom Monera

Cyanobacteria (blue-green algae) are photosynthetic autotrophs and are classified under Kingdom Monera. Mycoplasma lack a cell wall. Bacteria show diverse modes of nutrition; they are not exclusively heterotrophic. Slime moulds are saprophytic protists, classified under Kingdom Protista, not Monera.

66 **Answer: C** Ref 6110

Medium ~0.5 min Reproduction in Plants

When male and female sex organs are present on the same plant body, such plants are said to be monoecious. Most of the species of Chara are monoecious. Cycas circinalis, Carica papaya and Marchantia polymorpha are dioecious.

67 **Answer: A** Ref 6127

Easy ~0.5 min Bryophytes

Gemmae are green, multicellular asexual buds that are produced by some liverworts like Marchantia. Mosses reproduce vegetatively by fragmentation and budding of protonema. Pteridophytes and Gymnosperms normally do not reproduce asexually.

68 **Answer: D** Ref 6132

Easy ~0.5 min Algae

The cell wall of red algae is composed of agar, carrageen and funori along with cellulose. In brown algae cell wall contains algin while in green algae it is composed of cellulose and pectin. In blue green algae cell wall is composed of mucopeptides.

69 **Answer: B** Ref 6139

Easy ~0.5 min Algae

Ectocarpus is a brown alga belonging to the class Phaeophyceae. Members of this class store food as mannitol and laminarin. Ulothrix and Volvox belong to Chlorophyceae (green algae), which store starch. Gracilaria is a red alga (Rhodophyceae) and stores floridean starch.

70 **Answer: A** Ref 6140

Easy ~0.5 min Pteridophytes

Plants like *Selaginella* and *Salvinia* produce two kinds of spores, i.e., microspores and macrospores. They are known as heterosporous. Most of the pteridophytes produce a single type of spores and are called homosporous. Sorus are brownish or yellowish clusters of spore-producing structures located on the lower surface of fern leaves.

71 **Answer: D** Ref 6163

Medium ~1 min Phylum Coelenterata, Arthropoda, Nematoda, Mollusca

Option 4 is correct because *Physalia* is commonly known as Portuguese man of war. *Limulus* is considered as a living fossil and commonly known as king crab. *Ancylostoma* is a roundworm and commonly known as hookworm. *Pinctada* is commonly known as pearl oyster, included in phylum Mollusca.

72 **Answer: A** Ref 6171

Easy ~0.5 min Classification of Insects

Option (1) is correct because housefly belongs to the family Muscidae, class Insecta and phylum Arthropoda. Fire flies are placed in family Lampyridae of class insecta. Grasshopper is also an insect placed in family Acrididae. Cockroach is also an insect placed in family Blattidae.

73 **Answer: B** Ref 6179

Easy ~0.5 min Class Aves

Hollow and pneumatic long bones are characteristic features of animals belonging to class Aves (birds). These adaptations reduce body weight and aid in flight. Neophron (vulture) is a bird and possesses such bones. Ornithorhynchus (platypus) and Macropus (kangaroo) are mammals (class Mammalia), while Hemidactylus (wall lizard) is a reptile (class Reptilia); none of these have hollow and pneumatic long bones.

74 **Answer: A** Ref 6180

Medium ~1 min Classification of Animals

• Metagenesis (alternation of generation) is observed in members of phylum Coelenterata (Cnidaria), not Helminths. So (a) is incorrect.
• Echinoderms are triploblastic and coelomate animals as true coelom is observed in them. So (b) is correct.
• Roundworms (Aschelminths) have organ system level of organization. So (c) is correct.
• Comb plates present in ctenophores help in locomotion, not digestion. So (d) is incorrect.
• Water vascular system is seen in echinoderms, which helps in locomotion, capture and transport of food and respiration. So (e) is correct.

Therefore, statements (b), (c) and (e) are correct.

75 **Answer: D** Ref 6185

Medium ~1 min Phylum Characteristics

Metamerism is commonly seen in the members of phylum Annelida where the body is externally and internally divided into segments with a serial repetition of at least some organs.

Water canal system is present in the members of phylum Porifera.

The body of ctenophores bears 8 external rows of ciliated comb plates which help in locomotion.

Cnidoblasts or cnidocytes are characteristic feature of

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cnidarians (Coelenterata).

Therefore, the correct matching is:
(a) Metamerism → (iii) Annelida
(b) Canal system → (iv) Porifera
(c) Comb plates → (ii) Ctenophora
(d) Cnidoblasts → (i) Coelenterata

This corresponds to option (4): (iii) (iv) (ii) (i).

76 **Answer: B** Ref 5835
Medium ~1 min Classification and Characteristics of Animals
The correct matching is as follows:

(a) Gregarious, polyphagous pest → Locusta (Locust)

(b) Adult with radial symmetry and larva with bilateral symmetry → Asterias (Echinoderm)

(c) Book lungs → Scorpion (Arachnid)

(d) Bioluminescence → Ctenoplana (Ctenophore)

Thus, option (2) is correct.

77 **Answer: D** Ref 5850
Medium ~1 min Phylum Chordata
Statement (a) is false because in Urochordata, the notochord is present only in the larval tail and disappears in the adult. Statement (b) is true because in Vertebrata, the notochord is replaced by a vertebral column in the adult and is present only during the embryonic period. Statement (c) is true because the central nervous system in chordates is dorsal and hollow. Statement (d) is false because Chordata is divided into three subphyla: Urochordata (Tunicata), Cephalochordata, and Vertebrata; Hemichordata is a separate phylum. Therefore, the correct statements are (b) and (c).

78 **Answer: A** Ref 5861
Medium ~1 min Classification of Vertebrates
The correct matching is:
(a) 6-15 pairs of gill slits → Cyclostomes (ii)
(b) Heterocercal caudal fin → Chondrichthyes (iii)
(c) Air Bladder → Osteichthyes (iv)
(d) Poison sting → Trygon (i)

Thus, the correct option is (1): (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i).

79 **Answer: B** Ref 5872
Medium ~0.5 min Rhodophyceae (Red Algae)
Floridean starch is the stored food material in red algae (Rhodophyceae). Its structure is similar to amylopectin and glycogen, as it is a branched polysaccharide composed of glucose units linked by α-1,4 and α-1,6 glycosidic bonds.

80 **Answer: D** Ref 5877
Medium ~0.5 min Algae
Chlorella and Spirulina are unicellular algae. Laminaria, Sargassum, Gelidium, and Gracilaria are multicellular marine algae. Anabaena is a cyanobacterium (not an alga), and Volvox is a colonial alga, not unicellular.

81 **Answer: B** Ref 5881
Easy ~0.5 min Viroids
Viroids are infectious agents that consist solely of a short strand of circular, single-stranded RNA without a protein coat. They are smaller than viruses and cause several plant diseases. The RNA of viroids is free and not enclosed by any protein capsid.

82 **Answer: D** Ref 5896
Easy ~0.5 min Pteridophytes
Strobili or cones are reproductive structures found in some pteridophytes like Equisetum (horsetail). Salvinia is an aquatic fern, Pteris is a fern, and Marchantia is a bryophyte (liverwort). None of these produce strobili. Equisetum produces cones at the tips of fertile shoots.

83 **Answer: B** Ref 5913
Medium ~0.5 min Classification of Animals
Platyhelminthes (flatworms) are bilaterally symmetrical and acoelomate animals. They lack a body cavity (coelom) between the digestive tract and outer body wall. Ctenophora are radially symmetrical. Aschelminthes are bilaterally symmetrical but pseudocoelomate. Annelida are bilaterally symmetrical and coelomate.

84 **Answer: D** Ref 5669
Medium ~0.5 min Pteridophytes
In Pteridophytes, the megaspore is retained for some time in the female gametophyte. However, permanent retention is required for seed formation, which is observed in Gymnosperms. Therefore, Pteridophytes exhibit a precursor to the seed habit only.

85 **Answer: 3** Ref 5673
Medium ~1 min Classification and Characteristics of Animals
(a) Pila is a Mollusc. The mouth contains a file-like rasping organ for feeding called radula.
(b) Bombyx is an Arthropod. In Bombyx excretion takes place through malpighian tubules.
(c) Pleurobrachia is Ctenophore. The body bears eight external rows of ciliated comb plates, which help in locomotion.
(d) Taenia is a platyhelminth. Specialised cells called flame cells help in osmoregulation and excretion.

Thus, the correct matching is (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i), which corresponds to option (3).

86 **Answer: C** Ref 5682
Easy ~0.5 min Binomial Nomenclature
According to the rules of binomial nomenclature, the correctly written scientific name of mango is Mangifera indica Linn. The genus name starts with a capital letter, the species name starts with a small letter, and the name of the author (Linnaeus) is abbreviated as Linn. and appended at the end.

87 **Answer: A** Ref 5699
Medium ~1 min Kingdom Fungi and Symbiotic Relationships
Saprophytes - Decomposition of dead organic materials

Parasites - Grow on/in living plants and animals

Lichens - Symbiotic association of algae and fungi

Mycorrhiza - Symbiotic association of fungi with plant roots

Thus, the correct matching is (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i), which corresponds to option (1).

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88 **Answer: B** Ref 5707
Medium ~1 min Classification of Animals

True segmentation (metamerism) is present in Annelida, Arthropoda and Chordata. These phyla also exhibit organ system level of organisation, bilateral symmetry and are true coelomates. Mollusca, although bilaterally symmetrical and coelomate, do not show true segmentation. Hence, option (2) is correct.

89 **Answer: C** Ref 5708
Medium ~0.5 min Gymnosperms and Mycorrhizal Association

Fungus associated with roots of Pinus increases minerals & water absorption for the plant by increasing surface area and in turn fungus gets food from plant. Therefore, mycorrhizal association is obligatory for Pinus seed germination.

90 **Answer: D** Ref 5717
Medium ~0.5 min Viruses, Viroids and Prions

The infective constituent in viruses is either DNA or RNA, not the protein coat. The protein coat (capsid) protects the genetic material and helps in attachment to host cells, but the genetic material is what causes infection. Therefore, statement (4) is incorrect.

91 **Answer: B** Ref 5321
Easy ~0.5 min Classification of Animals

Homeotherms are animals that maintain a constant body temperature, irrespective of the surrounding temperature. Birds and mammals are homeotherms. Chelone (Turtle) belongs to class Reptilia, which are poikilotherms or cold-blooded animals.

92 **Answer: B** Ref 5323
Easy ~0.5 min Kingdom Protista

Diatoms are the chief producers of the ocean. They are a major group of algae and are among the most common types of phytoplankton. Diatoms are responsible for a significant portion of the primary production in marine ecosystems.

93 **Answer: C** Ref 5324
Medium ~0.5 min Protozoans

Ciliates differ from other protozoans in having two types of nuclei. For example, *Paramoecium* has two types of nuclei: macronucleus and micronucleus.

94 **Answer: A** Ref 5325
Easy ~0.5 min Development (Direct and Indirect)

Metamorphosis refers to transformation of larva into adult. Animals that perform metamorphosis are said to have indirect development. In earthworm, development is direct which means no larval stage and hence no metamorphosis.

95 **Answer: A** Ref 5334
Easy ~0.5 min Kingdom Monera and Fungi

Saccharomyces (yeast) is a unicellular fungus and belongs to Kingdom Fungi, hence it is a eukaryote. Mycobacterium is a bacterium (prokaryote). Oscillatoria and Nostoc are cyanobacteria (prokaryotes). Therefore, Saccharomyces is not a prokaryote.

96 **Answer: A** Ref 5352
Medium ~0.5 min Algae and Bryophytes

Polysiphonia is a genus of red algae, where asexual spores and gametes are non-motile or non-flagellated. Therefore, matching it with 'Uniflagellate gametes' is incorrect. The other options are correctly matched: Brown algae produce biflagellate zoospores, Chlorella is a unicellular organism, and Marchantia possesses gemma cups.

97 **Answer: D** Ref 5353
Medium ~0.5 min Kingdom Fungi

In Agaricus (a genus of basidiomycetes), basidiospores or meiospores are produced exogenously. Neurospora (a genus of ascomycetes) produces ascospores as meiospores but endogenously inside the ascus. Alternaria (a genus of deuteromycetes) does not produce sexual spores. Saccharomyces (unicellular ascomycetes) produces ascospores endogenously.

98 **Answer: C** Ref 5355
Easy Gymnosperms

In Pinus, winged pollen grains are present. It is extended outer exine on two lateral sides to form the wings of pollen. It is the characteristic feature, only in Pinus. Pollen grains of Mustard, Cycas and Mango are not winged shaped.

99 **Answer: D** Ref 5613
Easy ~0.5 min Vertebrata - Aves

The digestive tract of Aves has additional chambers in their digestive system as crop and Gizzard. Crop is concerned with storage of food grains. Gizzard is a masticatory organ in birds used to crush food grain.

100 **Answer: C** Ref 5626
Medium ~1 min Taxonomic Aids

The correct matching is:

• Herbarium: Dried and pressed plant specimen mounted on sheets (iii)
• Key: A booklet containing a list of characters and their alternates which are helpful in identification of various taxa (iv)
• Museum: Plant and animal specimen are preserved (i)
• Catalogue: Alphabetical listing of species with brief description aiding identification (ii)

Thus, the correct option is (3): a-(iii), b-(iv), c-(i), d-(ii).

101 **Answer: A** Ref 5087
Easy ~0.5 min Viroids

QUICK APPROACH Recall the NCERT definition of viroids as infectious agents and note how they structurally differ from viruses, particularly regarding their nucleic acid type and presence of a protein coat.

NCERT Class 11, Biological Classification (Chapter 2) states that in 1971 T.O. Diener discovered viroids as infectious agents smaller than viruses; they are free, circular single-stranded RNA molecules that lack any protein coat. Viruses, however, consist of nucleic acid (DNA or RNA) enclosed within a protein capsid. This absence of a protein coat is the fundamental point of difference.

Option [A] therefore matches the NCERT description exactly. Option [B] wrongly attributes DNA and a coat to viroids; [C] errs by mentioning DNA instead of RNA. Option [D] describes typical RNA viruses (e.g., TMV) that do possess a capsid; a common error is to equate viroids with naked viral genomes. Thus viroids are distinguished solely by naked RNA, making [A] the only accurate choice.

102 **Answer: C** Ref 5090

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Easy ~0.5 min Algae

Volvox is a motile colonial freshwater alga with a definite number of vegetative cells. Spirogyra is filamentous, Chlorella is unicellular, and Ulothrix is also filamentous.

103 **Answer: D** Ref 5097

Easy ~0.5 min Porifera

Choanocytes (collar cells) form lining of spongocoel in poriferans (sponges). Flagella in collar cells provide circulation to water in water canal system.

104 **Answer: D** Ref 5106

Medium ~0.5 min Kingdom Monera

> **QUICK APPROACH** Recall the characteristics of the smallest living cells that lack a cell wall and can survive anaerobically, and identify which among the given options fits this description.

Mycoplasmas are the smallest, wall-less prokaryotes, pleomorphic in nature. These are pathogenic on both plants and animals.

105 **Answer: B** Ref 5115

Medium ~0.5 min Gymnosperms and Pteridophytes

Pinus is a monoecious plant, meaning it bears both male and female cones on the same plant. The statement 'Pinus – Dioecious' is therefore incorrect. Equisetum is homosporous, Cycas is dioecious, and Salvinia is heterosporous, so those pairings are correct.

106 **Answer: A** Ref 5116

Medium ~0.5 min Life Cycles in Plants

Chlamydomonas exhibits a haplontic life cycle. In this type of life cycle, the zygote is the only diploid stage and it undergoes meiosis (zygotic meiosis or initial meiosis) to produce haploid spores, which then develop into the haploid adult organism.

107 **Answer: D** Ref 5121

Medium ~0.5 min Hemichordates and Chordates

Pharyngeal gill slits are present in hemichordates as well as in chordates. Notochord is present in chordates only. Ventral tubular nerve cord is characteristic feature of non-chordates.

108 **Answer: D** Ref 5126

Medium ~0.5 min Life cycles in algae

Ectocarpus exhibits a haplodiplontic life cycle, where both haploid and diploid stages are multicellular and alternate. Fucus exhibits a diplontic life cycle, where the diploid sporophyte is the dominant, multicellular stage and the haploid stage is represented only by gametes.

109 **Answer: D** Ref 5136

Easy ~0.5 min Classification of Mammals

Sharks and Trygon (sting ray) are members of Chondrichthyes (cartilaginous fish), while whales, dolphins, and seals are aquatic mammals belonging to class Mammalia. Therefore, the correct combination of aquatic mammals is Whales, Dolphins, and Seals.

110 **Answer: C** Ref 5142

Easy Classification of Mammals

Horse belongs to order Perissodactyla of class Mammalia. Perissodactyla includes odd-toed mammals.

111 **Answer: B** Ref 5166

Easy ~0.5 min Kingdom Monera

Archaebacteria are able to survive in harsh conditions because of branched lipid chain in cell membrane which reduces fluidity of cell membrane. Halophiles are exclusively found in saline habitats.

112 **Answer: D** Ref 5493

Medium ~0.5 min Viroids

Viroids are infectious agents that consist of a small, single-stranded RNA molecule without a protein coat. They are smaller than viruses and are known to cause certain plant diseases. The RNA of viroids is of low molecular weight, not high molecular weight. Therefore, the statement 'Their RNA is of high molecular weight' is wrong.

113 **Answer: B** Ref 5529

Medium ~0.5 min Cockroach Morphology and Anatomy

The correct answer is option (2) because *Periplaneta americana* (cockroach) belongs to the phylum Arthropoda. Arthropods are protostomes and exhibit determinate and spiral cleavage, not indeterminate and radial cleavage (which is characteristic of deuterostomes like echinoderms and chordates). The other features are present in cockroaches: (1) Schizocoelom as body cavity, (3) Exoskeleton composed of chitin (a polymer of N-acetylglucosamine), and (4) Metamerically segmented body.

114 **Answer: C** Ref 5532

Medium ~0.5 min Kingdom Monera and Fungi

The statement 'Eubacteria are also called false bacteria' is wrong. Eubacteria are true bacteria, while Archaebacteria are considered ancient or primitive bacteria. Cyanobacteria are indeed called blue-green algae. Golden algae (Chrysophytes) include desmids. Phycomycetes are called algal fungi due to their resemblance to certain algae.

115 **Answer: C** Ref 5544

Medium ~0.5 min Gymnosperms

Gymnosperms are heterosporous, not homosporous. Salvinia is a pteridophyte, not a gymnosperm. Sequoia sempervirens is indeed one of the tallest trees. The leaves of gymnosperms are well adapted to extremes of climate (e.g., needle-like leaves to reduce water loss). Therefore, the correct statement is option (3).

116 **Answer: A** Ref 5549

Medium ~1 min Classification of Animals

Chondrichthyes (cartilaginous fishes) always have a cartilaginous endoskeleton. This is a defining characteristic of the group.

Option (2) is incorrect because not all mammals are viviparous; the platypus (Ornithorhynchus) and echidna (Tachyglossus) are oviparous (egg-laying) mammals.

Option (3) is incorrect because not all chordates possess jaws. Agnatha (jawless vertebrates like lampreys and hagfish) are chordates that lack jaws.

Option (4) is incorrect because while most reptiles have a 3-chambered heart with an incompletely divided ventricle, crocodiles (which are reptiles) have a 4-chambered heart.

117 **Answer: D** Ref 5560

Easy Bryophytes and Pteridophytes

> **QUICK APPROACH** Recall that bryophytes and pteridophytes have flagellated male gametes which require a medium to swim; think about what medium they use for this movement.

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In bryophytes and pteridophytes, the male gametes (antherozoids) are flagellated and motile. They require a thin film of water to swim to the archegonia (female reproductive structure) for fertilization. Therefore, water is essential for the transport of male gametes in these plant groups.

118 **Answer: C** Ref 5564

Easy ~0.5 min Vertebrata - Aves and Mammalia

Birds and mammals share several characteristics: both have an ossified (bony) endoskeleton, breathe using lungs, and are warm-blooded (endothermic). However, viviparity (giving birth to live young) is a characteristic of most mammals but not of birds. Birds are oviparous, meaning they lay eggs. Therefore, viviparity is not shared by birds and mammals.

119 **Answer: A** Ref 5568

Easy ~0.5 min Binomial Nomenclature

According to the universal rules of binomial nomenclature, biological names are derived from Latin or are latinised, regardless of their origin. They are not written in any language. The first word represents the genus and the second word represents the specific epithet. When printed, the names are italicised, and when handwritten, they are underlined. Therefore, the statement that biological names can be written in any language is contrary to the rules of nomenclature.

120 **Answer: B** Ref 5572

Easy Kingdom Protista

Chrysophytes, Euglenoids, Dinoflagellates and Slime moulds are all unicellular eukaryotic organisms. According to the five-kingdom classification proposed by R.H. Whittaker, these organisms are placed in the kingdom Protista. Kingdom Monera includes prokaryotes, Kingdom Fungi includes multicellular heterotrophs with chitinous cell walls, and Kingdom Animalia includes multicellular heterotrophs without cell walls.

121 **Answer: C** Ref 5583

Medium ~0.5 min Kingdom Monera

Methanogens are primitive prokaryotes belonging to the domain Archaea. They are obligate anaerobes that produce methane (biogas) as a metabolic byproduct. In the rumen (gut) of ruminant animals like cows and buffaloes, methanogens help in the fermentation of cellulose and other complex carbohydrates present in the dung, leading to the production of biogas. Hence, option (3) is correct.

122 **Answer: C** Ref 5494

Medium ~0.5 min Phylum Arthropoda

Parapodia are fleshy, unjointed lateral appendages found in annelids (e.g., Nereis) for locomotion and respiration. Arthropods possess jointed appendages, a chitinous exoskeleton, and metameric segmentation, but they do not have parapodia. Therefore, option (3) is the feature not present in Arthropoda.

123 **Answer: C** Ref 4900

Medium ~0.5 min

Algae, Bryophytes, Pteridophytes, Gymnosperms, Fungi

Mucor has non-motile spores i.e. sporangiospores. It does not produce biflagellate zoospores.

124 **Answer: D** Ref 4907

Medium ~0.5 min Kingdom Fungi

QUICK APPROACH Recall the characteristics of fungi, especially the edibility and classification of morels and truffles within Ascomycetes from your NCERT.

Morels and truffles are edible fungi belonging to class Ascomycetes. Therefore, the statement that they are poisonous mushrooms is wrong.

125 **Answer: B** Ref 4919

Easy ~0.5 min Kingdom Protista

Chrysophytes are photosynthetic protists. They have overlapping cell wall like soap box.

126 **Answer: C** Ref 4927

Medium ~0.5 min Coelenterata (Cnidaria)

In coelenterates, metagenesis is alternation of generation between polyp and medusa. Polyp reproduces asexually by budding to form medusa and medusa reproduces sexually to form polyp.

127 **Answer: C** Ref 4949

Medium ~0.5 min Phylum Porifera

In poriferans, the body is a loose aggregate of cells (meshwork of cells). Internal cavities and canals are lined with food filtering flagellated cells i.e., choanocytes (collar cells). Choanocytes help in filter feeding. They also exhibit indirect development.

128 **Answer: A** Ref 4950

Medium ~0.5 min Cyclostomata

Petromyzon (Lamprey) is a migratory marine water jawless fish which shows anadromous migration. It spawns in fresh water, stops feeding and dies. Its larva (Ammocoetes) after metamorphosis will return to ocean.

129 **Answer: B** Ref 4965

Easy ~0.5 min Kingdom Fungi

Deuteromycetes are commonly known as imperfect fungi because only the asexual or vegetative phases of these fungi are known. They are decomposers of litter and help in mineral cycling.

130 **Answer: A** Ref 4985

Easy ~0.5 min Kingdom Monera

The members of kingdom Monera are prokaryotes; they lack a nuclear membrane. Therefore, the statement 'Nuclear membrane is present in Monera' is wrong. The other statements are correct: Animalia lack a cell wall, Protista exhibit both photosynthetic and heterotrophic nutrition, and some fungi (e.g., mushrooms) are edible.

131 **Answer: B** Ref 2771

Easy ~0.5 min Economic importance of algae

Chlorella is a unicellular green alga rich in proteins, vitamins, minerals, and other nutrients. It has been used as a food supplement and is also considered a source of single-cell protein for human nutrition. Ulothrix and Spirogyra are green algae but are not commonly employed as human food, while Polysiphonia is a red alga.

132 **Answer: B** Ref 2778

Easy ~0.5 min Anoxygenic photosynthesis in photosynthetic bacteria

Anoxygenic photosynthesis is a type of photosynthesis in which oxygen is not evolved because water is not used as the electron donor. It is seen in certain photosynthetic bacteria such as purple bacteria. Rhodospirillum is a purple non-sulphur bacterium and performs anoxygenic photosynthesis. Ulva, Spirogyra, and Chlamydomonas are green algae and carry out oxygenic photosynthesis, releasing O_2.

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133 **Answer: B** Ref 2791

Easy ~0.5 min Bacteria - locomotory structures

Motile bacteria move with the help of flagella. Flagella are long, whip-like locomotory appendages that rotate and help bacteria swim in liquid environments. Fimbriae and pili mainly help in attachment or conjugation, while cilia are locomotory structures found in eukaryotic cells, not bacteria.

134 **Answer: B** Ref 2798

Medium ~0.5 min Viruses - Tobacco Mosaic Virus structure

Tobacco mosaic virus, or TMV, is a rod-shaped virus with a single-stranded RNA genome. Its RNA is coiled helically and is surrounded by many protein subunits called capsomeres. Therefore, the virus showing a coiled RNA strand and capsomeres is Tobacco mosaic virus.

135 **Answer: B** Ref 2801

Easy ~0.5 min Phylum Platyhelminthes - Regeneration in Planaria

Planaria is a flatworm belonging to phylum Platyhelminthes. It is well known for its very high power of regeneration, meaning even small body fragments can grow into complete individuals under suitable conditions. Metamorphosis is typical of organisms like frogs and insects, alternation of generation is common in plants and some lower organisms, and bioluminescence is light production seen in organisms like fireflies and some marine animals. Therefore, the correct answer is regeneration.

136 **Answer: D** Ref 2810

Medium ~0.5 min Algae - Sexual Reproduction

Spirogyra shows isogamy with non-flagellated gametes. In Spirogyra, sexual reproduction occurs by conjugation, where similar non-motile gametes fuse. Ulothrix shows isogamy with flagellated gametes, Ectocarpus commonly shows flagellated gametes, and Sargassum shows oogamy.

137 **Answer: A** Ref 2829

Easy ~0.5 min Viruses

Viruses are acellular infectious agents whose genetic material is enclosed within a protein coat called capsid. A virus contains either DNA or RNA as genetic material, not both together. They do not have a prokaryotic nucleus and are not considered cells with chromosomes like cellular organisms. Among the given options, DNA enclosed in a protein coat is the best correct choice.

138 **Answer: B** Ref 2831

Easy ~0.5 min Cell wall in different groups of organisms

Sea-fan, scientifically called Gorgonia, is an animal belonging to phylum Cnidaria. Animal cells completely lack a cell wall. Cyanobacteria and blue-green algae are prokaryotic organisms with a cell wall, while Saccharomyces is yeast, a fungus, and has a fungal cell wall. Therefore, the organism that completely lacks a cell wall is Sea-fan (Gorgonia).

139 **Answer: D** Ref 2837

Easy ~0.5 min Bryophytes - Sphagnum and peat formation

Sphagnum, commonly called peat moss, is responsible for peat formation. It grows in boggy, waterlogged areas and its dead remains accumulate slowly because decomposition is very slow under acidic and anaerobic conditions. Over time, these partially decomposed remains form peat, which can be used as fuel and also improves soil water-holding capacity. Marchantia and Riccia are liverworts, while Funaria is a moss, but they are not the main organisms responsible for peat formation.

140 **Answer: D** Ref 2846

Easy ~0.5 min Lichens as pollution indicators

Lichens are very sensitive to air pollutants, especially sulphur dioxide. They generally do not grow well in polluted areas. Therefore, luxuriant growth of lichens on trees indicates clean air and an unpolluted location.

141 **Answer: D** Ref 2848

Easy ~0.5 min Phylum Cnidaria

Cnidaria includes mostly marine animals, but some members are found in fresh water, such as Hydra. Echinoderms, Ctenophora, and Cephalochordata are marine groups. Therefore, the taxon representing both marine and fresh water species is Cnidaria.

142 **Answer: D** Ref 2849

Medium ~1 min Algae - Chara reproductive structures

In Chara, the male reproductive structure is called globule or antheridium, and the female reproductive structure is called nucule or oogonium. These are generally present on the same plant. Their position is important: the oogonium or nucule is present above, while the antheridium or globule is present below. Therefore, the statement 'Upper antheridium and lower oogonium' is wrong.

143 **Answer: D** Ref 2851

Medium ~1 min Male gametophyte and reduction in plant groups

Lilium is an angiosperm. In angiosperms, the male gametophyte is highly reduced and is represented by the pollen grain, usually with only 2 cells at shedding or 3 cells at maturity. Pinus has a more cellular male gametophyte than angiosperms, while Pteris and Funaria have multicellular gametophytes. Therefore, the male gametophyte with the least number of cells is found in Lilium.

144 **Answer: B** Ref 2856

Easy ~0.5 min Archaebacteria and Eubacteria

Archaebacteria differ from eubacteria mainly in the structure and chemical composition of their cell membrane. Archaebacterial membranes contain branched-chain lipids linked to glycerol by ether bonds, while eubacterial membranes usually contain fatty acids linked by ester bonds. Their cell wall composition also differs, but among the given options, cell membrane structure is the best answer.

145 **Answer: C** Ref 2858

Easy ~0.5 min Kingdom Fungi

Amanita muscaria is a poisonous mushroom known to contain hallucinogenic compounds such as muscimol and ibotenic acid. Ustilago is a smut fungus, Morchella esculenta is an edible morel mushroom, and Neurospora is commonly used in genetic studies. Therefore, the correct answer is Amanita muscaria.

146 **Answer: B** Ref 2933

Easy ~0.5 min Chondrichthyes

Torpedo is a marine cartilaginous fish commonly known as the electric ray. It has specialized electric organs that can generate electric current, mainly for defense and stunning prey. Pristis is sawfish, Trygon is stingray, and Scoliodon is dogfish; they are cartilaginous fishes but are not known for producing electric current like Torpedo.

147 **Answer: A** Ref 2936

Medium ~0.5 min Five Kingdom Classification

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R.H. Whittaker proposed the five kingdom classification mainly using criteria such as cell structure, thallus/body organization, mode of nutrition, mode of reproduction, and phylogenetic relationships. Mode of reproduction, mode of nutrition, and complexity of body organization are clearly among Whittaker's criteria. Hence, the option considered NOT based on Whittaker's five kingdom classification is presence or absence of a well-defined nucleus.

148 **Answer: B** Ref 2651

Easy ~0.5 min Animal classification and phylum identification

Prawn, Scorpion and Locusta all belong to the phylum Arthropoda. Prawn is a crustacean, Scorpion is an arachnid and Locusta is an insect, but all three are arthropods. Option A is incorrect because Earthworm belongs to Annelida, Pinworm belongs to Nematoda and Tapeworm belongs to Platyhelminthes. Option C is incorrect because Sponge belongs to Porifera, Sea anemone belongs to Cnidaria and Starfish belongs to Echinodermata. Option D is incorrect because Malarial parasite and Amoeba are protozoans, while Mosquito belongs to Arthropoda.

149 **Answer: A** Ref 2680

Medium ~0.5 min Algae - Sexual Reproduction

In algae, isogamy means fusion of morphologically similar gametes. Spirogyra shows isogamy with non-flagellated gametes. Chlamydomonas may show isogamy with flagellated gametes, while Volvox and Fucus show oogamy. Hence, the correct answer is Spirogyra.

150 **Answer: C** Ref 2690

Easy ~0.5 min Cyanobacteria and Prokaryotic Cell Structure

In cyanobacteria, photosynthetic pigments are present in membranous extensions of the plasma membrane called chromatophores. These help in photosynthesis. Basal bodies are related to flagella or cilia, pneumatophores are respiratory roots in plants, and heterocysts are specialized nitrogen-fixing cells in some cyanobacteria.

151 **Answer: D** Ref 2692

Medium ~1 min Animal classification and chordates

The correctly matched row is Petromyzon - ectoparasite - Cyclostomata. Petromyzon is a lamprey, placed under Cyclostomata, and it is commonly an ectoparasite on fishes. Ichthyophis is a limbless amphibian, not Reptilia. Limulus is an arthropod, not Pisces, though it has a chitinous exoskeleton. Adamsia is a sea anemone belonging to Cnidaria/Coelenterata, not Porifera, though it is radially symmetrical.

152 **Answer: B** Ref 2697

Medium ~1 min Oomycetes and types of gametes

The wrong statement is option B. In oogamous reproduction, the female gamete is large and non-motile, while the male gamete is smaller and usually motile. Oomycetes show oogamous sexual reproduction, so saying that the female gamete is smaller and motile while the male gamete is larger and non-motile is reversed and incorrect. Anisogametes differ in structure, function or behaviour, so option A is correct. Chlamydomonas can show isogamy and anisogamy, and Fucus shows oogamy, so option C is correct. Isogametes are similar in structure, function and behaviour, so option D is correct.

153 **Answer: C** Ref 2699

Medium ~1 min Algae - Chara reproductive structures

In Chara, the male sex organ is called antheridium or globule, and the female sex organ is called oogonium or nucule. In monoecious Chara, both male and female sex organs occur on the same plant. The oogonium is positioned above, while the antheridium is positioned below. Therefore, the correct option is upper oogonium and lower antheridium on the same plant.

154 **Answer: A** Ref 2701

Medium ~0.5 min Cyanobacteria and symbiosis

Cyanobacteria such as Nostoc and Anabaena can live symbiotically in the coralloid roots of Cycas. These roots are vegetative parts and help in nitrogen fixation. Hence, the correct option is Cycas.

155 **Answer: B** Ref 2706

Hard ~1.5 min Bryophytes, Pteridophytes, Gymnosperms and Reproduction

Statement (A) is correct. In liverworts, mosses and ferns, the gametophyte stage is free-living.

Statement (B) is correct. Gymnosperms are heterosporous, and some ferns such as Salvinia are also heterosporous.

Statement (C) is correct. Fucus, Volvox and Albugo show oogamous sexual reproduction, where the female gamete is large and non-motile and the male gamete is smaller and motile.

Statement (D) is incorrect. The sporophyte in mosses is more elaborate than that in liverworts, not the reverse.

Statement (E) is incorrect. Marchantia is dioecious, but Pinus is generally monoecious because male and female cones are borne on the same plant.

So, the correct statements are A, B and C. Therefore, three statements are correct.

156 **Answer: B** Ref 2714

Medium ~1 min Microorganisms in Extreme Habitats

Deep sea water has very little or no sunlight, high pressure, low temperature in many regions, and in some places extreme conditions like hydrothermal vents. Eubacteria can be present because many bacteria survive as decomposers or chemosynthetic forms in deep sea environments. Saprophytic fungi may also occur as decomposers, using dead organic matter. Archaebacteria are especially likely in extreme habitats, including deep sea hydrothermal regions. Blue-green algae, or cyanobacteria, are photosynthetic and require light, so they are not typically expected in deep sea water. Hence, the likely organisms are 1, 3 and 4.

157 **Answer: B** Ref 2734

Easy ~1 min Taxonomic classification of animals

Option B is correctly matched. House fly, butterfly, tsetse fly and silverfish all belong to class Insecta under phylum Arthropoda.

Option A is incorrect because centipede belongs to Chilopoda, millipede belongs to Diplopoda, while spider and scorpion belong to Arachnida; they are not Insecta.

Option C is incorrect because sea urchin and sea cucumber

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are Echinodermata, but spiny anteater is a mammal.

Option D is incorrect because flying fish belongs to Pisces, but cuttle fish belongs to Mollusca and silverfish belongs to Insecta.

158 **Answer: B** Ref 2754

Easy ~0.5 min Taxonomical Aids

The incorrect statement is option B. Museums are taxonomical aids that generally keep preserved plant and animal specimens for study and reference, not merely photographs. Botanical gardens maintain living plant collections, keys help in identification of specimens, and herbaria store dried, pressed and preserved plant specimens. Therefore, option B is not a correct statement.

159 **Answer: A** Ref 2756

Easy ~0.5 min Phylum Arthropoda

Silverfish is an insect and belongs to phylum Arthropoda. Arthropods have jointed appendages, a chitinous exoskeleton, and a segmented body. Pufferfish and flying fish are vertebrates belonging to phylum Chordata, while cuttlefish is a mollusc belonging to phylum Mollusca.

160 **Answer: C** Ref 2368

Easy ~0.5 min Nutritional diversity in kingdoms

Monera shows maximum nutritional diversity because bacteria can be autotrophic or heterotrophic. Autotrophic bacteria may be photosynthetic or chemosynthetic, while heterotrophic bacteria may be saprophytic, parasitic or symbiotic. Other kingdoms have comparatively limited modes of nutrition: Plantae are mainly autotrophic, Animalia are mainly holozoic heterotrophs, and Fungi are mainly absorptive heterotrophs.

161 **Answer: B** Ref 2508

Medium ~0.5 min Comparison of gymnosperms and pteridophytes

Cycas is a gymnosperm and Adiantum is a pteridophyte. They differ in many features: Cycas has seeds, while Adiantum does not; Cycas has cambium, while Adiantum generally lacks it; vessels are absent in both typical Cycas and Adiantum, but the key reproductive resemblance asked here is the presence of motile male gametes. Both Cycas and Adiantum produce flagellated, motile sperms that require water or fluid medium for movement during fertilization.

162 **Answer: D** Ref 2519

Medium ~0.5 min Bacteria and Their Economic Importance

Heterotrophic bacteria are the most abundant bacteria and are highly useful to humans. Lactobacillus helps in curd formation from milk, and many heterotrophic bacteria such as Streptomyces are used in antibiotic production. Cyanobacteria are mainly photosynthetic, archaebacteria live in extreme habitats, and chemosynthetic autotrophs oxidize inorganic substances for energy.

163 **Answer: D** Ref 2530

Medium ~1 min Pteridophytes and origin of seed habit

The correct statement is that the origin of seed habit can be traced in pteridophytes. Some pteridophytes show heterospory, producing two types of spores: microspores and megaspores. This heterospory is considered an important evolutionary step toward seed habit. Option A is incorrect because protonemal and leafy stages are features of moss gametophytes, not pteridophytes. Option B is incorrect because in gymnosperms the female gametophyte is retained within the ovule and is not free-living. Option C is incorrect because antheridiophores are found in bryophytes like Marchantia, and protonema is typical of mosses.

164 **Answer: D** Ref 2531

Easy ~0.5 min Cyanobacteria

Cyanobacteria are photosynthetic prokaryotes placed under Kingdom Monera. They contain chlorophyll a and phycobilin pigments, which often give them a blue-green appearance. Hence, cyanobacteria are also called blue-green algae. Protists, golden algae, and slime moulds belong to Kingdom Protista, not cyanobacteria.

165 **Answer: A** Ref 2533

Easy ~0.5 min Biodiversity of Fungi

Among the given groups, fungi represent the highest number of species in the world. Fungi are extremely diverse and occur in many habitats as decomposers, parasites, and symbionts. Mosses, algae, and lichens have fewer known species compared to fungi.

166 **Answer: A** Ref 2545

Medium ~1 min Phylum characters and examples

The incorrectly matched option is (a). Pila belongs to phylum Mollusca and has a mouth with radula, which is correct. However, its body is not segmented. Molluscs generally have an unsegmented body, usually divided into head, muscular foot and visceral mass. Therefore, 'body segmented' is incorrect for Pila. Asterias is correctly matched with Echinodermata because it has spiny skin and a water vascular system. Sycon is correctly matched with Porifera because it is pore-bearing and has a canal system. Periplaneta is correctly matched with Arthropoda because it has jointed appendages and a chitinous exoskeleton.

167 **Answer: B** Ref 2548

Easy ~0.5 min Viruses

The wrong statement is: All of them have helical symmetry. Viruses show different types of symmetry such as helical, icosahedral/cubical, and complex symmetry. For example, tobacco mosaic virus has helical symmetry, while many animal viruses have icosahedral symmetry and bacteriophages show complex symmetry. Viruses are obligate intracellular parasites, and antibiotics generally do not affect them.

168 **Answer: D** Ref 2555

Easy ~0.5 min Prokaryotes and Cyanobacteria

Nuclear membrane is absent in prokaryotic organisms because they do not have a true nucleus. Nostoc is a cyanobacterium, which is prokaryotic, so it lacks a nuclear membrane. Penicillium and Agaricus are fungi, and Volvox is an alga; all three are eukaryotic and have a well-defined nucleus with a nuclear membrane.

169 **Answer: D** Ref 2557

Medium ~0.5 min Vegetative reproduction by fragmentation

Multicellular fungi, filamentous algae, and protonema of mosses can all reproduce or multiply by fragmentation. In fragmentation, the body breaks into smaller fragments, and each fragment can grow into a new individual. Diplontic life cycle is not common to all three. Fungi are not members of kingdom Plantae. Their mode of nutrition also differs: fungi

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are heterotrophic, algae are generally autotrophic, and moss protonema is photosynthetic.

170 **Answer: C** Ref 2558

Medium ~1 min Taxonomic groups and classification of organisms

Yeast is a unicellular fungus and is commonly used in bread making and brewing due to fermentation. Paramecium and Plasmodium belong to Kingdom Protista, while Penicillium belongs to Kingdom Fungi, so option A is incorrect. Lichen is a symbiotic association between algae/cyanobacteria and fungi, not protozoa, so option B is incorrect. Nostoc and Anabaena are cyanobacteria placed under Monera, not Protista, so option D is incorrect.

171 **Answer: D** Ref 2574

Easy ~0.5 min Gymnosperms

Gymnosperms are called soft wood spermatophytes because their secondary xylem is mainly made of tracheids and generally lacks xylem fibres and vessels. They do have cambium, which helps in secondary growth, and thick-walled tracheids are present for water conduction and support. Hence, the correct answer is xylem fibres.

172 **Answer: A** Ref 2168

Medium ~0.5 min Cyanobacteria and nitrogen fixation

Cycas has coralloid roots that contain cyanobacteria such as Anabaena and Nostoc. These are prokaryotic, autotrophic, nitrogen-fixing symbionts. Cicer and Pisum have Rhizobium in root nodules, which is prokaryotic and nitrogen-fixing but not autotrophic. Alnus has Frankia, an actinomycete nitrogen-fixing symbiont, but it is not autotrophic. Therefore, the correct answer is Cycas.

173 **Answer: C** Ref 2263

Medium ~0.5 min Alternation of generations and gymnosperms

In Pinus, which is a gymnosperm, the gametophyte is highly reduced and dependent on the sporophyte. The male gametophyte is represented by the pollen grain, and the female gametophyte develops within the ovule. Hence, it is not an independent, free-living generation. In Adiantum, Marchantia, and Polytrichum, the gametophyte is free-living or dominant/independent at some stage.

174 **Answer: C** Ref 2274

Medium ~1 min

Alternation of Generations and Evolution of Gametophyte

In bryophytes, the gametophyte is the dominant, independent, and relatively larger phase. In vascular plants, especially pteridophytes, gymnosperms, and angiosperms, the sporophyte becomes dominant while the gametophyte becomes progressively reduced. Along with this reduction, the sex organs also become smaller and, in higher vascular plants, may be highly reduced or absent as distinct structures. Therefore, compared with bryophytes, vascular plant gametophytes are generally smaller and have smaller sex organs.

175 **Answer: A** Ref 2299

Easy ~0.5 min Archaebacteria - Methanogens

Methanogens are anaerobic archaebacteria that produce methane. They are commonly found in the rumen of cattle and in cattle dung, where anaerobic conditions and organic matter support their growth. Therefore, they are most abundant in a cattle yard.

176 **Answer: A** Ref 2309

Easy ~0.5 min Algae - Phaeophyceae stored food

Mannitol is a stored food material found in brown algae, also called Phaeophyceae. Fucus belongs to Phaeophyceae, and its reserve food is mainly laminarin and mannitol. Gracillaria and Porphyra are red algae, where reserve food is floridean starch. Chara is a green alga, where reserve food is starch. Therefore, the correct answer is Fucus.

177 **Answer: C** Ref 2318

Medium ~1 min Sexual dimorphism in animals

The correct match is Male shark — claspers borne on pelvic fins. In male sharks, pelvic fins bear claspers, which are used during copulation. Male frog has nuptial/copulatory pads on the first digit of the forelimb, not hind limb. In cockroach, anal cerci are present in both sexes, while anal styles are present only in males. In Ascaris, the male has a sharply curved posterior end, whereas the female has a straight posterior end.

178 **Answer: D** Ref 2340

Easy ~0.5 min Eubacteria cell structure

In eubacteria, the plasma membrane resembles the eukaryotic cell membrane in its basic structure, as both are made of a lipid bilayer with proteins. Eubacteria do not have a true nucleus, so option A is incorrect. Their ribosomes are 70S, while eukaryotic cytoplasmic ribosomes are 80S, so option B is incorrect. Their cell wall is made of peptidoglycan, unlike the cell walls of plants or fungi, so option C is incorrect. Therefore, the correct answer is plasma membrane.

179 **Answer: A** Ref 2344

Medium ~1 min Animal classification and characteristic features

Option A is the correct match. Salamandra belongs to class Amphibia. Amphibians have a tympanum representing the ear, and fertilisation is generally described as external in NCERT-level classification. Option B is wrong because Pteropus is a mammal and has hair, but it is viviparous, not oviparous. Option C is wrong because Aurelia belongs to Coelenterata/Cnidaria and has cnidoblasts, but coelenterates show tissue level organization, not organ level organization. Option D is wrong because Ascaris belongs to Nematoda/Aschelminthes, not Annelida, and its body is unsegmented.

180 **Answer: B** Ref 2349

Medium ~1 min Chordata and Vertebrate Classification

> **QUICK APPROACH** Recall the defining characteristic features of Chordata, Chondrichthyes, Mammalia, and Reptilia from NCERT and check which feature is universally true without exceptions within that group.

Chondrichthyes are cartilaginous fishes, and their endoskeleton is made of cartilage, so this match is correct without exception. Chordata is incorrect because all chordates do not have jaws; for example, cyclostomes are jawless. Mammalia is incorrect because monotremes such as platypus and echidna lay eggs. Reptilia is incorrect because crocodiles have a four-chambered heart, so the given feature is not true without exception.

181 **Answer: A** Ref 2362

Medium ~0.5 min

Puccinia is wrongly matched with smut. Puccinia is a fungus that causes rust disease, especially wheat rust. Smut disease is commonly caused by Ustilago. The other pairs are correct: roots show exarch xylem arrangement where protoxylem lies

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towards the periphery; Cassia shows imbricate aestivation; and root pressure is responsible for guttation.

182 **Answer: D** Ref 2365

Easy ~0.5 min Bryophytes - Marchantia

Archegoniophore is a stalked female reproductive branch that bears archegonia. It is characteristic of Marchantia, a liverwort. Chara is an alga, Adiantum is a pteridophyte, and Funaria is a moss; they do not have archegoniophores like Marchantia.

183 **Answer: D** Ref 2367

Medium ~1 min Taxonomic Categories and Binomial Nomenclature

Tiger is scientifically named Panthera tigris. Here, Panthera is the genus and tigris is the species epithet used in the species name, so the match is correct. Cuttlefish belongs to phylum Mollusca, but Mollusca is not a class; its class is Cephalopoda. Humans belong to order Primates, not family Primate; their family is Hominidae. Housefly belongs to genus Musca and order Diptera, so Musca is not an order.

184 **Answer: D** Ref 1967

Easy ~0.5 min Digestive system and body plan in animal phyla

Animals with a single external opening serving as both mouth and anus have an incomplete digestive tract. Fasciola, a platyhelminth, has an incomplete alimentary canal with only one opening. Octopus, Asterias, and Ascidia have a complete digestive tract with separate mouth and anus.

185 **Answer: D** Ref 2004

Easy ~0.5 min Gymnosperms - Xylem conducting elements

In gymnosperms, the main water-conducting elements of xylem are tracheids. Vessels are generally absent in gymnosperms, except in some advanced groups like Gnetales. Fibres mainly provide mechanical support, and transfusion tissue helps in lateral conduction in leaves, but it is not the chief xylem water-conducting element.

186 **Answer: A** Ref 2098

Easy ~0.5 min Five Kingdom Classification / Kingdom Protista

Single-celled eukaryotes are mainly placed in Kingdom Protista. Protists have a true nucleus and membrane-bound organelles, so they are eukaryotic. Monera and Archaea include prokaryotic organisms, while Fungi are mostly multicellular eukaryotes, though yeast is unicellular. Hence, the best answer is Protista.

187 **Answer: D** Ref 2116

Medium ~0.5 min Gametophyte independence in plant groups

Sphagnum is a bryophyte. In bryophytes, the gametophytic phase is dominant, independent, photosynthetic, and free-living. Male and female gametophytes may occur separately and are not dependent on the sporophyte for nutrition. Mustard and Castor are angiosperms, where male and female gametophytes are highly reduced and dependent. Pinus is a gymnosperm, where gametophytes are also reduced and dependent on the sporophyte. Therefore, the correct answer is Sphagnum.

188 **Answer: C** Ref 2132

Medium ~1 min Characteristic features of animal phyla and classes

Spongilla is a freshwater sponge belonging to phylum Porifera. Sponges possess special flagellated collar cells called choanocytes, which help in maintaining water current and capturing food particles. Leech belongs to Annelida, dolphin is a mammal, and penguin is a bird; they do not possess choanocytes. Option A is incorrect because both dolphin and penguin are homoiothermic. Option B is incorrect because Spongilla is freshwater, not marine. Option D is incorrect because Spongilla is not bilaterally symmetrical.

189 **Answer: A** Ref 2135

Easy ~0.5 min Germ layers and levels of organisation

Flat worms belong to phylum Platyhelminthes and are triploblastic, meaning their body develops from three germ layers: ectoderm, mesoderm and endoderm. Sponges lack true tissues and germ layers. Ctenophores are diploblastic. Corals belong to phylum Cnidaria and are also diploblastic. Therefore, the correct answer is Flat worms.

190 **Answer: A** Ref 2137

Easy ~1 min Body cavity and coelom in animal phyla

Roundworms, placed under Aschelminthes or Nematoda, have a body cavity that is not completely lined by mesoderm, so they are pseudocoelomates. Molluscs are coelomates, not acoelomates. Insects belong to Arthropoda and are coelomates with a reduced coelom and haemocoel, not pseudocoelomates. Flatworms, belonging to Platyhelminthes, are acoelomates, not coelomates. Therefore, the correct statement is: Roundworms (Achelminthes) are pseudocoelomates.

191 **Answer: A** Ref 2145

Medium ~0.5 min Extremophiles: Eubacteria and Archaea

Hyperthermophiles are organisms that can live at very high temperatures, often in extreme environments such as hot acidic springs. Some such organisms growing in highly acidic habitats around pH 2 are found among prokaryotic groups, especially archaea, and also some eubacteria. Cyanobacteria, diatoms, mosses, liverworts and yeasts are not the typical groups known for such extreme hyperthermophilic acidic habitats. Therefore, the correct answer is eubacteria and archaea.

192 **Answer: B** Ref 2159

Easy ~0.5 min Viruses, Viroids and Prions

Prions are infectious protein particles. They do not contain nucleic acid and are responsible for certain neurodegenerative diseases. Viroids are infectious RNA particles, while geminiviruses and satellite viruses contain nucleic acid as part of their infectious material. Therefore, infectious proteins are present in prions.

193 **Answer: C** Ref 1782

Easy ~0.5 min Connecting links

Peripatus is considered a connecting link between Annelida and Arthropoda. It shows annelid-like characters such as a worm-like body and nephridia, and arthropod-like characters such as tracheal respiration and clawed legs. Therefore, the correct answer is Annelida and Arthropoda.

194 **Answer: B** Ref 1788

Easy ~0.5 min Basis of Classification: Symmetry and Germ Layers

Aschelminthes, also called roundworms, are bilaterally symmetrical and triploblastic animals. They possess three germ layers: ectoderm, mesoderm and endoderm. Coelenterates and ctenophores are diploblastic and generally radially symmetrical. Sponges are mostly asymmetrical and lack true tissue-level organization. Therefore, the correct answer is Aschelminthes (roundworms).

195 **Answer: C** Ref 1859

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Medium ~1 min Life cycles and alternation of generations

Ustilago is a fungus, and fungi commonly show a haplontic life cycle, where the dominant phase is haploid and the diploid stage is limited to the zygote before meiosis. Funaria and Polytrichum are bryophytes showing a haplo-diplontic life cycle with dominant gametophyte and dependent sporophyte. Wheat is an angiosperm and shows a diplontic life cycle with dominant diploid sporophyte. Hence, the correct answer is Ustilago.

196 **Answer: B** Ref 1894

Medium ~0.5 min Cyanobacteria and photosynthetic bacteria

Oxygenic photosynthesis is photosynthesis in which water acts as the electron donor and O_2 is released. This occurs in cyanobacteria such as Oscillatoria. Chromatium, Rhodospirillum, and Chlorobium are photosynthetic bacteria that perform anoxygenic photosynthesis, so they do not release O_2 during photosynthesis.

197 **Answer: B** Ref 1908

Easy ~0.5 min Monoecious and Dioecious Plants

Pinus is monoecious because both male cones and female cones are present on the same plant. Marchantia is usually dioecious, with male and female sex organs on separate plants. Cycas is dioecious, and Papaya is also commonly dioecious. Therefore, the correct answer is Pinus.

198 **Answer: A** Ref 1927

Easy ~0.5 min Systems of Classification

Phylogenetic classification is based on evolutionary relationships among organisms. It arranges organisms according to their common ancestry and evolutionary history, unlike artificial or natural systems that may rely mainly on morphology, floral characters, or other observable traits.

199 **Answer: C** Ref 1932

Easy ~0.5 min Algae - Phaeophyceae

Mannitol is a reserve food material found in brown algae, also called Phaeophyceae. Fucus belongs to Phaeophyceae, so it stores food mainly as laminarin and mannitol. Chara is a green alga and stores starch. Porphyra and Gracillaria are red algae and store floridean starch.

200 **Answer: A** Ref 1933

Medium ~0.5 min Plant Diseases and Causal Organisms

The wrong pairing is Late blight of potato : Alternaria solani. Late blight of potato is actually caused by Phytophthora infestans. Alternaria solani causes early blight of potato. The other pairings are correct: black rust of wheat is caused by Puccinia graminis, loose smut of wheat is caused by Ustilago nuda, and root-knot disease of vegetables is caused by Meloidogyne species.

201 **Answer: A** Ref 1940

Easy ~0.5 min Pteridophytes and vascular cryptogams

Equisetum is a pteridophyte. Pteridophytes are called vascular cryptogams because they have vascular tissues, xylem and phloem, but do not produce seeds. Ginkgo and Cedrus are gymnosperms, so they are vascular phanerogams. Marchantia is a bryophyte and lacks true vascular tissue. Therefore, the vascular cryptogam is Equisetum.

202 **Answer: B** Ref 1946

Easy ~0.5 min Heterospory and Seed Habit

Heterospory is considered an important step in the development of seed habit. In heterosporous plants, two types of spores are produced: microspores and megaspores. The megaspore is retained within the megasporangium, where the female gametophyte develops. This retention and protection of the female gametophyte gradually led to the evolution of the seed habit. Therefore, the correct answer is Heterospory.

203 **Answer: A** Ref 1948

Easy ~0.5 min Viroids

T.O. Diener discovered viroids. Viroids are the smallest known infectious agents and are made of free, low molecular weight, circular single-stranded RNA without a protein coat. Hence, they are described as free infectious RNA. Infectious protein refers to prions, not viroids. Bacteriophages are viruses that infect bacteria.

204 **Answer: A** Ref 1702

Easy ~0.5 min Class Aves and evolutionary relationship with reptiles

Birds show reptilian ancestry through the presence of scales on their hind limbs. Reptiles have scales as a characteristic feature, and birds retaining scales on their legs is an evolutionary evidence of their reptilian origin. A four-chambered heart is also found in birds and mammals, so it is not a specific indicator of reptilian ancestry. Crop and gizzard are digestive adaptations in birds, and calcareous-shelled eggs are not the best distinguishing evidence here.

COMMON TRAPS

- **Taking any shared reptile-bird feature as the answer instead of the specific ancestry indicator.** In NEET/NCERT context, the direct visible reptilian feature retained by birds is "scales on their hind limbs." *Avoid it:* Ask whether the feature is a retained reptilian body covering trait in birds or a broader reproductive/amniote trait.
- **Confusing four-chambered heart with reptilian ancestry because crocodiles have it.** A four-chambered heart is not specific to reptilian ancestry in birds because it is also found in mammals and only some reptiles like crocodilians. *Avoid it:* For ancestry indicators, prefer unique retained morphological clues over convergent/shared advanced traits.

REVISE NCERT Animal Kingdom Aves features with special attention to reptilian affinities. · Make a table separating 'general bird adaptations' from 'evolutionary evidence of reptilian origin.'

205 **Answer: B** Ref 1716

Easy ~0.5 min Pteridophytes - Heterospory

Salvinia is a heterosporous pteridophyte, meaning it produces two types of spores: microspores and megaspores. Dryopteris, Adiantum, and Equisetum are generally homosporous pteridophytes, producing only one type of spore. Hence, the correct answer is Salvinia.

206 **Answer: A** Ref 1724

Medium ~0.5 min Cell wall composition of microbes

Pythium is an oomycete, commonly called a water mould. Oomycetes have cell walls mainly made of cellulose and glucans. Xanthomonas and Pseudomonas are bacteria, so their cell wall mainly contains peptidoglycan. Saccharomyces is a fungus, and its cell wall mainly contains glucans, mannans and chitin-like components, not cellulose as the major component. Therefore, the correct answer is Pythium.

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COMMON TRAPS

- **Treating all fungi as having cellulose cell walls.** In this question, the correct organism is "Pythium" because it is an oomycete/water mould with cellulose and glucans as major wall components; Saccharomyces is yeast and not cellulose-major. *Avoid it:* Before selecting a fungus-like name, classify each option: Pythium = oomycete; Saccharomyces = yeast/fungus; Xanthomonas/Pseudomonas = bacteria.
- **Confusing Pythium with true fungus and applying chitin rule.** Oomycetes are fungus-like protists in NCERT classification, and their walls mainly contain cellulose/glucans, not chitin-dominant fungal walls. *Avoid it:* When seeing Pythium/Phytophthora/Albugo, tag them as oomycetes before applying cell wall composition.

REVISE Microbial cell wall composition as paired facts: bacteria—peptidoglycan; true fungi/yeast—chitin/glucans/mannans; oomycetes—cellulose/glucans. · Memorize NCERT examples of oomycetes such as Pythium, Phytophthora and Albugo.

207 **Answer: A** Ref 1741

Easy | ~0.5 min | Bacterial diseases of plants

Bacterial leaf blight of rice is caused by Xanthomonas oryzae, specifically Xanthomonas oryzae pv. oryzae. Alternaria is a fungus, while Pseudomonas and Erwinia cause other bacterial plant diseases but not the typical bacterial leaf blight of rice.

208 **Answer: B** Ref 1749

Medium | ~1 min | Gymnosperms - Gnetum and angiosperm affinities

Gnetum is a gymnosperm but shows some angiosperm-like features. Two important features are the presence of vessel elements in xylem and the absence of archegonia in the female gametophyte. Cycas and Pinus generally lack true vessels and possess archegonia. Hence, these characters distinguish Gnetum from Cycas and Pinus and show its affinity with angiosperms.

209 **Answer: A** Ref 1752

Medium | ~1 min | Archaebacteria

Thermococcus, Methanococcus and Methanobacterium are examples of archaebacteria, especially from groups like methanogens and thermophiles. Many archaebacteria possess histone-like proteins that are homologous to eukaryotic core histones. These proteins help in DNA packaging, similar to the role of histones in eukaryotes. Options C and D are incorrect because archaebacteria are prokaryotic and do not have membrane-bound organelles like mitochondria. Option B is not correct for these examples because they are known to possess histone-like proteins.

210 **Answer: B** Ref 1774

Easy | ~0.5 min | Phylum Aschelminthes / Nematoda

Ascaris belongs to phylum Aschelminthes, also called Nematoda. Members of this phylum are pseudocoelomates, meaning they do not possess a true coelom. They are also unsegmented, so metamerism is absent. Therefore, Ascaris shows neither true coelom nor metamerism.

211 **Answer: C** Ref 1777

Medium | ~1 min | Morphological features of animal phyla

Scorpion, spider and cockroach belong to phylum Arthropoda. Arthropods characteristically possess a ventral, solid, double nerve cord forming the central nervous system, so option C is correctly matched. Option A is incorrect because sea anemone shows radial symmetry, not bilateral symmetry. Option B is incorrect because sea urchin is an echinoderm and does not have jointed appendages like arthropods. Option D is incorrect because Taenia does not show true metameric segmentation; its body has proglottids, which are not true segments.

212 **Answer: D** Ref 1490

Medium | ~1 min

Riccia is a bryophyte and has flagellated male gametes. Dryopteris is a pteridophyte and also has flagellated male gametes. Cycas is a gymnosperm with large motile, multiflagellate male gametes. Hence, all three in option D have flagellated male gametes. Spirogyra and Zygnema have non-flagellated gametes involved in conjugation, while Hydrilla and Calotropis are angiosperms with non-flagellated male gametes.

213 **Answer: B** Ref 1520

Easy | ~0.5 min | Slime moulds

Physarum is a slime mould, placed under Kingdom Protista in biological classification. Rhizopus is a fungus, Thiobacillus is a bacterium, and Anabaena is a cyanobacterium.

214 **Answer: D** Ref 1534

Easy | ~0.5 min | Kingdom Fungi - Plant Diseases

Ergot of rye is a fungal disease caused by Claviceps, especially Claviceps purpurea. It infects the flowering heads of rye and produces dark, hard structures called sclerotia. Phytophthora causes diseases like late blight of potato, Uncinula causes powdery mildew, and Ustilago causes smut diseases.

215 **Answer: B** Ref 1547

Medium | ~1 min | Gymnosperms - Reproduction and Pollination

In gymnosperms, after pollination, pollen grains are received near the micropyle and are stored in a special cavity present in the ovule called the pollen chamber. It is not a cell inside the pollen grain, not the microsporangium, and not an opening in the megagametophyte. Therefore, the pollen chamber represents a cavity in the ovule in which pollen grains are stored after pollination.

216 **Answer: D** Ref 1548

Medium | ~1 min | Pteridophytes - Prothallus and Fertilization

Vascular cryptogams are pteridophytes. Their gametophyte is called the prothallus, which may bear both male sex organs, antheridia, and female sex organs, archegonia. If antherozoids and eggs mature at different times, the condition is called dichogamy. This prevents the male and female gametes of the same prothallus from fusing with each other, so self-fertilization is prevented and cross-fertilization is promoted. Hence, the correct answer is self fertilization is prevented.

217 **Answer: A** Ref 1566

Medium | ~1 min | Vertebrate characteristics: Aves and Mammalia

Parrot is a bird, while platypus and kangaroo are mammals. Birds and mammals are homeothermic, meaning they maintain a relatively constant body temperature. Oviparity is not common because kangaroo is viviparous. Toothless jaws are not common because kangaroo has teeth. Hence, the common feature is homeothermy.

218 **Answer: A** Ref 1570

Easy | ~0.5 min | Species concept

Two plants are conclusively considered to belong to the same species if they can interbreed freely and produce viable reproductive structures such as seeds. This follows the biological species concept, where reproductive compatibility

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is the key criterion. Similar genes, similar appearance, identical secondary metabolites, or the same chromosome number alone are not conclusive because different species may share these features but still fail to interbreed successfully.

COMMON TRAPS

- **Treating high genetic similarity as species identity.** For this NEET-level biological species concept question, the conclusive criterion is reproductive compatibility: "can reproduce freely with each other and form seeds" / "can interbreed freely and produce viable reproductive structures such as seeds." A percent similarity value alone is not conclusive. *Avoid it:* When an option gives a percentage like "90 per cent", ask whether NCERT states that exact cutoff for species. If not, reject it as non-conclusive.
- **Equating similar morphology and metabolites with same species.** Morphological/chemical similarities are supporting taxonomic characters but not conclusive; different species can look similar or have similar metabolites while being reproductively isolated. *Avoid it:* Underline the word "conclusively" in the stem and choose only a criterion that directly tests reproductive compatibility.

REVISE The biological species concept: same species = interbreed freely and produce viable/fertile offspring or reproductive structures. · Make a two-column table of conclusive vs non-conclusive species criteria: interbreeding vs genes/morphology/metabolites/chromosome number.

219 **Answer: A** Ref 1576

Medium ~0.5 min Bryophytes - Liverworts

In some liverworts, spore dispersal is aided by elaters. Elaters are elongated, hygroscopic sterile cells present in the capsule. They twist and untwist with changes in moisture, helping in the release and dissemination of spores. Indusium is related to ferns, calyptra protects the capsule in bryophytes, and peristome teeth help spore dispersal mainly in mosses.

COMMON TRAPS

- **Confusing liverwort elaters with moss peristome teeth.** The question specifically says "in some liverworts"; liverwort spore dispersal is aided by "elaters", while "peristome teeth" are mainly a moss feature. *Avoid it:* Before choosing, match the structure to the bryophyte subgroup: liverworts → elaters; mosses → peristome teeth.
- **Choosing calyptra because it is a bryophyte capsule term.** The explanation says "calyptra protects the capsule in bryophytes"; protection is not the same as aiding spore release/dissemination. *Avoid it:* Ask whether the structure actively helps in dispersal/release or only covers/protects another structure.

REVISE Bryophyte subgroups separately: liverworts vs mosses, especially capsule structures. · Create flashcards for elaters, peristome teeth, calyptra, and indusium with plant group + function.

220 **Answer: B** Ref 1580

Medium ~1 min Characteristic features of animal phyla

Leech belongs to phylum Annelida and has a ventral nerve cord, so the pair 'Ventral central nervous system - Leech' is correctly matched. Octopus is a mollusc and does not possess a post-anal tail, which is a chordate feature. Chamaeleon is a chordate, and chordates show pharyngeal gill slits at least during embryonic development, so saying they are absent in embryo is incorrect. Scorpion is an arthropod and has a dorsal heart, not a ventral heart.

221 **Answer: A** Ref 1582

Medium ~1 min Animal morphology and classification features

A is correct: Crocodile is a reptile, and crocodilians have a 4-chambered heart.

B is incorrect: Sea urchin is an echinoderm. Parapodia are locomotory appendages found in annelids like Nereis, not in sea urchin.

C is correct: Obelia shows metagenesis, meaning alternation of generations between polyp and medusa forms.

D is correct: Lemur is a mammal, and mammals have thecodont dentition, where teeth are embedded in sockets of the jaw bones.

Therefore, the correctly matched pairs are A, C and D.

222 **Answer: B** Ref 1586

Medium ~1 min Phylum Annelida and Arthropoda

Nereis belongs to phylum Annelida, while Scorpion, Cockroach and Silver fish belong to phylum Arthropoda. So, they do not all belong to the same phylum. Nereis is aquatic, so the statement that none of them is aquatic is false. Jointed paired appendages are characteristic of arthropods, not Nereis. However, all of them possess a dorsally placed pumping organ or dorsal heart/dorsal blood vessel arrangement. Hence, the correct statement is that they all possess dorsal heart.

COMMON TRAPS

- **Treating Nereis as an arthropod because it has appendage-like structures.** Jointed paired appendages are a defining feature of Arthropoda. Nereis belongs to Annelida and has parapodia, not jointed appendages. *Avoid it:* Before accepting a shared character, classify each organism first: Nereis = Annelida; Scorpion, Cockroach, Silver fish = Arthropoda.
- **Misreading Silver fish as a fish/aquatic chordate.** Silver fish/silverfish is not Pisces; it is an arthropod insect. In this question, it is grouped with Scorpion and Cockroach under Arthropoda in the explanation. *Avoid it:* Do not classify by common-name suffixes like fish/starfish/jellyfish; recall the NEET animal kingdom examples.

REVISE NCERT examples for Annelida and Arthropoda with one-line distinguishing features. · Make a checklist for absolute statements: one exception makes 'all' or 'none' false.

223 **Answer: C** Ref 1590

Easy ~0.5 min Mycoplasma

Mycoplasma are also known as PPLO, which means Pleuro Pneumonia Like Organisms. They lack a cell wall, so they are pleomorphic and can change shape. Penicillin acts by inhibiting bacterial cell wall synthesis. Since mycoplasma do not have a cell wall, they are not sensitive to penicillin. Some mycoplasma can cause diseases in plants and animals. Therefore, the wrong statement is: They are sensitive to penicillin.

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COMMON TRAPS

- **Missing that the question asks for the wrong statement.** This is a negative-type question; the correct answer is the statement that is biologically false. Here C is false because mycoplasma lack cell wall and penicillin targets cell wall synthesis. *Avoid it:* Circle or mentally highlight the word “wrong” before reading options, then write T/F beside each option.
- **Thinking penicillin kills all bacteria-like organisms.** Penicillin acts by inhibiting bacterial cell wall synthesis; mycoplasma do not have a cell wall, so they are not sensitive to penicillin. *Avoid it:* Whenever an antibiotic is mentioned, ask: what is its target structure/process, and does this organism have that target?

REVISE The one-line NCERT facts: Mycoplasma/PPLO are the smallest living cells, lack cell wall, are pleomorphic, and resist penicillin. · For negative questions, mark each option as True/False before choosing.

224 **Answer: B** Ref 1597

Medium | ~1 min | Characteristics of Living Organisms

Living organisms are unexceptionally distinguished from non-living things by consciousness, which means the ability to sense the environment and respond to environmental stimuli. Responsiveness to touch is only one type of response, so it is too narrow. Reproduction is not universal because sterile organisms like mules, worker bees, and infertile humans do not reproduce. Growth can occur in non-living things also, such as crystals, by external accumulation. Movement can also be shown by non-living objects. Hence, interaction with the environment and progressive evolution is the best distinguishing feature.

225 **Answer: A** Ref 1601

Easy | ~0.5 min | Levels of biological organisation

Biological organisation begins at the submicroscopic molecular level because biomolecules such as proteins, nucleic acids, carbohydrates and lipids form the basic functional components of living systems. These molecules organise further to form cells, tissues, organs, organ systems, organisms and higher levels like populations and ecosystems. The atomic level is more basic chemically, but biological organisation is generally considered to start from biomolecular or submicroscopic molecular level.

226 **Answer: B** Ref 1606

Easy | ~0.5 min | Nomenclature

ICBN stands for International Code of Botanical Nomenclature. It was the set of rules used for naming plants scientifically. Note: It is now known as ICN, International Code of Nomenclature for algae, fungi, and plants, but in older NCERT/NEET-style questions, ICBN refers to International Code of Botanical Nomenclature.

227 **Answer: A** Ref 1610

Medium | ~1 min | Classification of Algae

Algae are mainly classified into distinct groups such as Chlorophyceae, Phaeophyceae and Rhodophyceae on the basis of the type of photosynthetic pigments present. Pigments determine the characteristic colour and are the primary criterion used for broad classification of algae. Stored food and cell wall composition also help in identification, but the best character among the given options for classifying algae into distinct groups is the type of pigments present in the cell.

COMMON TRAPS

- **Treating stored food as the primary classification basis.** For broad algal classes like Chlorophyceae, Phaeophyceae and Rhodophyceae, the primary basis is photosynthetic pigment type, matching option A: "Types of pigments present in the cell". *Avoid it:* When a question asks for the best broad classification character, prioritize the feature that gives the groups their characteristic colour: pigment composition.
- **Thinking thallus organization is enough to classify all algae.** Structural organization describes body complexity, not the main taxonomic grouping into Chlorophyceae, Phaeophyceae and Rhodophyceae. Pigments are the primary criterion. *Avoid it:* Ask whether the chosen feature separates green, brown, and red algae consistently. Thallus form does not; pigments do.

REVISE NCERT Plant Kingdom algae table by labeling each feature as primary classification basis vs supporting identification feature. · Practice questions asking for 'main basis', 'best criterion', and 'characteristic feature' separately, because NEET often tests this wording difference.

228 **Answer: B** Ref 1334

Easy | ~0.5 min | Bryophytes - Sphagnum moss peat

Moss peat is mainly obtained from Sphagnum, a bryophyte. It has a very high water-holding capacity due to its hygroscopic nature. Because it can retain moisture for a long time, it is used as a packing material for transporting flowers, cuttings, and live plants over long distances, keeping them fresh and preventing drying.

COMMON TRAPS

- **Choosing availability instead of the functional reason.** In NEET Plant Kingdom, the standard reason for moss peat/Sphagnum use in transporting plants is its hygroscopic nature and high water-holding capacity, not mere availability. *Avoid it:* Whenever the stem asks why a plant product is used, match the use to a specific property mentioned in NCERT/standard facts; here packing live plants requires moisture retention.
- **Confusing hygroscopic with reducing transpiration.** Moss peat does not physiologically reduce transpiration; it retains water because it is hygroscopic, providing a moist environment. *Avoid it:* Ask whether the option describes a property of moss peat itself or an effect on the plant's physiology. The correct property is "It is hygroscopic".

REVISE NCERT economic importance of bryophytes, especially Sphagnum/peat moss uses. · Memorize property-to-use links instead of isolated uses: hygroscopic → water retention → packing material.

229 **Answer: B** Ref 1336

Easy | ~0.5 min | Slime moulds (Myxomycetes)

In slime moulds, especially Myxomycetes, the vegetative thalloid body is a multinucleate, naked mass of protoplasm called plasmodium. Protonema is the juvenile stage of mosses, fruiting body is the reproductive structure, and mycelium is the filamentous body of fungi.

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COMMON TRAPS

- **Confusing slime mould thalloid body with moss juvenile stage.** For the exact phrase "The thalloid body of a slime mould (Myxomycetes)", the relevant term is the vegetative body of Myxomycetes: "Plasmodium". "Protonema" belongs to mosses, not slime moulds. *Avoid it:* Before choosing a morphology term, tag the organism group first: slime mould/Myxomycetes → plasmodium; moss → protonema.
- **Mistaking reproductive fruiting body for vegetative thalloid body.** The stem asks "thalloid body" and the explanation specifies "vegetative thalloid body". The "fruiting body" is reproductive, not the vegetative thalloid body. *Avoid it:* Underline whether the question asks for vegetative body or reproductive structure. Here it asks body known as, and explanation says vegetative thalloid body → plasmodium.

REVISE Organism-group-specific body terms: moss—protonema, fungi—mycelium, slime mould—plasmodium. · Practice distinguishing vegetative structures from reproductive structures in slime moulds.

230 **Answer: D** Ref 1340

Medium | ~1 min | Gymnosperms and Angiosperms

Conifers are gymnosperms, while grasses are angiosperms. In gymnosperms like conifers, the nutritive tissue often called endosperm is actually the haploid female gametophyte and it forms before fertilization. In grasses, which are angiosperms, endosperm forms after double fertilization and is generally triploid. Option A is not correct because both conifers and grasses produce seeds from ovules. Option B is not correct because conifers have xylem tracheids. Option C is not correct because conifers do have pollen tubes. Therefore, the distinguishing feature is formation of endosperm before fertilization.

231 **Answer: B** Ref 1351

Easy | ~0.5 min | Bacteria and their modes of respiration

Clostridium botulinum is a Gram-positive, spore-forming bacterium that grows in the absence of oxygen. It is an obligate anaerobe, meaning oxygen is toxic or inhibitory to its growth. It produces botulinum toxin under anaerobic conditions, commonly associated with improperly canned or preserved foods. Therefore, the correct answer is an obligate anaerobe.

COMMON TRAPS

- **Confusing obligate anaerobe with facultative anaerobe.** An obligate anaerobe must grow without oxygen and is harmed by oxygen; a facultative anaerobe can grow with or without oxygen. *Avoid it:* When the organism is described as harmed by oxygen, select obligate anaerobe, not facultative anaerobe.
- **Misreading 'Clostridium botulinum' as just any food-poisoning bacterium.** Clostridium species such as C. botulinum and C. tetani are classic obligate anaerobes; improper canning creates anaerobic conditions. *Avoid it:* For NEET, tag Clostridium with anaerobic spore-forming rods; botulism specifically points to obligate anaerobe.

REVISE Memorize Clostridium botulinum as an obligate anaerobic, spore-forming bacterium associated with improperly canned foods. · Exact meanings of obligate, facultative, aerobic, and anaerobic.

232 **Answer: A** Ref 1357

Medium | ~1 min

Bryophytes - Moss sporophyte and gametophyte relationship

In mosses, the dominant plant body is the gametophyte. The sporophyte remains attached to the gametophyte and depends on it for nutrition, either completely or partially. Therefore, the moss sporophyte is considered partially parasitic on the gametophyte. It does not produce gametes; gametes are produced by the gametophyte. The sporophyte develops from the zygote, not from a spore. Also, although some moss sporophytes may have limited photosynthetic ability, they do not manufacture food for the gametophyte.

COMMON TRAPS

- **Treating the moss sporophyte as fully independent/autotrophic.** In mosses, the dominant, independent plant body is the gametophyte. The sporophyte remains attached and nutritionally dependent on the gametophyte; its photosynthesis, if present, is limited and does not make it independent. *Avoid it:* When comparing options A and D, underline dependency words: option A says "parasitic on the gametophyte" while option D says "manufactures food ... for the gametophyte". In moss, nutrition flows mainly from gametophyte to sporophyte, not sporophyte to gametophyte.
- **Confusing gamete production with spore production.** A sporophyte produces spores by meiosis. A gametophyte produces gametes by mitosis. Gametes fuse to form a zygote; spores germinate to form the gametophyte. *Avoid it:* Use the name-check rule: sporophyte → spores, gametophyte → gametes. If an option says sporophyte produces gametes, flag it immediately as wrong.

REVISE Memorise the life-cycle sequence with ploidy: gametophyte (n) → gametes (n) → zygote (2n) → sporophyte (2n) → spores (n) → gametophyte (n). · For every Plant Kingdom MCQ, first identify the group cue: here, "moss" = bryophyte = dominant gametophyte.

233 **Answer: C** Ref 1364

Medium | ~1 min | Phylum-wise examples and classification

Option C is correct because Loligo, Teredo, and Octopus all belong to phylum Mollusca. Loligo is a squid, Teredo is a shipworm, and Octopus is a cephalopod mollusc.

Option A is incorrect because Physalia and Aurelia are cnidarians, but Bonellia is not a cnidarian.

Option B is incorrect because Planaria and Schistosoma belong to Platyhelminthes, but Enterobius is a nematode.

Option D is incorrect because Spongilla and Euplectella belong to Porifera, but Pennatula is a cnidarian, commonly called sea pen.

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COMMON TRAPS

- **Treating Bonellia as a cnidarian because it is grouped with Physalia and Aurelia.** A matching set requires all three examples to belong to the named phylum. Bonellia is not Cnidaria; Physalia and Aurelia are cnidarians. *Avoid it:* For each option, mark each example individually as yes/no for the phylum instead of accepting the option after identifying two correct examples.
- **Accepting Platyhelminthes because Planaria and Schistosoma are correct.** Enterobius is a nematode/roundworm, not a platyhelminth. The correct option must have all three examples matching the phylum. *Avoid it:* When an option includes parasite names, classify by body form/phylum: flatworm examples like Schistosoma vs roundworm examples like Enterobius.

REVISE NCERT Animal Kingdom examples by phylum with special focus on exceptions and misleading common names. · Practice eliminating matching-set options by identifying the single mismatched organism.

234 **Answer: C** Ref 1365

Easy ~0.5 min Metameric Segmentation

Metameric segmentation means the body is divided into repeated segments arranged linearly. This is a characteristic feature of Annelida, such as earthworms, and is also seen in Arthropoda, such as insects and crustaceans. Platyhelminthes, Echinodermata, and Mollusca do not show true metameric segmentation. Hence, the correct answer is Annelida and Arthropoda.

COMMON TRAPS

- **Choosing any option with Arthropoda but ignoring the paired phylum.** Metameric segmentation is characteristic of Annelida and Arthropoda; Platyhelminthes do not show true metamerism. *Avoid it:* For paired options, test each word separately; one wrong member makes the whole option wrong.
- **Confusing Annelida with the typo-like option 'Annelisa'.** Annelida is correct for metamerism, but Echinodermata does not show true metameric segmentation. *Avoid it:* Do not pick an option just because one term resembles the correct phylum; check the other paired phylum.

REVISE NCERT Animal Kingdom phylum-wise diagnostic features, especially segmentation/coelom/symmetry. · Practice eliminating paired options by checking both members independently.

235 **Answer: A** Ref 1368

Medium ~1 min Kingdom Protista

Trypanosoma, Noctiluca, Monocystis and Giardia are all unicellular eukaryotic organisms placed under protists. They are not all flagellated because Monocystis is a sporozoan-type protist and lacks flagella. They do not all produce spores in the same way. They are also not all parasites because Noctiluca is mainly a free-living marine dinoflagellate. Hence, the common feature is that all are unicellular protists.

236 **Answer: B** Ref 1371

Easy ~1 min Fungi - Mucor growth conditions

Mucor is a fungus commonly seen as bread mould. Fungi grow best in warm, moist and dark or shady conditions. A temperature of about 25 °C is suitable for its growth, while 5 °C is too cold and slows fungal growth. High relative humidity, about 95%, provides the moisture needed for fungal growth, whereas 5% humidity is too dry. A shady place is preferred because bright illumination is not essential for Mucor growth. Therefore, the correct conditions are A, D and E only.

COMMON TRAPS

- **Choosing cold temperature because bread mould is associated with stored food.** The explanation states: "A temperature of about 25 °C is suitable for its growth, while 5 °C is too cold and slows fungal growth." For optimum growth, Mucor needs warm conditions, so statement A is correct and B is incorrect. *Avoid it:* When a question asks "essential for optimum growth", select the condition that increases fungal metabolism, not the condition used to store food safely.
- **Reading 5% humidity as enough moisture.** The explanation says: "High relative humidity, about 95%, provides the moisture needed for fungal growth, whereas 5% humidity is too dry." Therefore, D is correct and C is incorrect. *Avoid it:* Do not stop at the keyword "humidity"; compare the exact value: 5% means very dry, 95% means very moist.

REVISE The standard fungal growth phrase: warm, moist, dark/shady conditions. · Practice multi-statement questions by first identifying opposite pairs before looking at final options.

237 **Answer: B** Ref 1403

Easy ~0.5 min Circulatory system in invertebrates

Periplaneta, commonly known as cockroach, belongs to Phylum Arthropoda. Arthropods generally have an open circulatory system, where blood or haemolymph flows through body spaces called sinuses instead of being completely confined to blood vessels. Pheretima and Hirudinaria are annelids, which have a closed circulatory system. Octopus is a cephalopod mollusc and has a closed circulatory system. Therefore, the correct answer is Periplaneta.

238 **Answer: B** Ref 1406

Medium ~1 min Phylum Ctenophora

Ctenoplana and Beroe belong to phylum Ctenophora. Ctenophores show biradial symmetry and do not possess cnidoblasts. Instead, they have adhesive cells called colloblasts for capturing prey. Sea anemone, Aurelia, and Hydra are cnidarians, so they possess cnidoblasts. Starfish belongs to Echinodermata and does not match the combination asked. Therefore, the correct answer is Ctenoplana and Beroe.

239 **Answer: B** Ref 1419

Easy ~0.5 min Phylum Arthropoda

Centipede, cockroach and crab all belong to phylum Arthropoda. The two universal arthropod features among them are jointed appendages, including jointed legs, and a chitinous exoskeleton. Compound eyes are not common to all three in the same way, anal cerci are typical of cockroach but not crab, green glands are found in crustaceans like crab, tracheae are found in insects and myriapods but not crab, and book lungs are typical of arachnids, not these three animals.

240 **Answer: D** Ref 1050

Medium ~1 min Characteristic examples in diversity of living organisms

Peritrichous flagellation means flagella are distributed all over the bacterial surface; Escherichia coli is a common example. Ginkgo is called a living fossil. Rhizophore is a characteristic structure of Selaginella. Wolffia is the smallest flowering plant. Macrocystis is the largest perennial brown

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alga. Therefore, the correct matching is A-3, B-1, C-4, D-5, E-2.

241 **Answer: D** Ref 1057

Medium | ~1 min | Gymnosperms - Cycads

Cycads, such as Cycas, show top-shaped multiciliate motile male gametes. Their mature seed usually contains a single embryo with two cotyledons. These features are not characteristic of angiosperms or conifers. Hence, the correct answer is Cycads.

242 **Answer: C** Ref 1059

Easy | ~1 min | Non-chordates: Porifera, Cnidaria and Arthropoda

The wrong statement is option C. Members of phylum Porifera are mostly marine, but they are not exclusively marine. Some sponges, such as Spongilla, are found in freshwater. Millipedes generally have two pairs of legs per apparent body segment, prawn has two pairs of antennae as a crustacean, and nematocysts are characteristic stinging cells of Cnidaria.

243 **Answer: C** Ref 1064

Easy | ~0.5 min | General characters of Mammalia

Mammals typically have seven cervical vertebrae, thecodont dentition where teeth are embedded in sockets, and alveolar lungs for efficient respiration. However, mammals possess twelve pairs of cranial nerves, not ten pairs. Ten pairs of cranial nerves are characteristic of fishes and amphibians. Therefore, the character not typical of Mammalia is ten pairs of cranial nerves.

COMMON TRAPS

- **Missing the negative wording 'not typical'.** Mammals typically have seven cervical vertebrae, thecodont dentition in many standard descriptions, alveolar lungs, and twelve—not ten—pairs of cranial nerves. *Avoid it:* Circle/underline 'not' before checking options; mark each option as T for typical or NT for not typical.
- **Confusing mammalian cranial nerves with fish/amphibian count.** For NEET: mammals possess 12 pairs of cranial nerves; fishes and amphibians possess 10 pairs. *Avoid it:* Attach the number to the animal group: Mammalia = XII; fishes/amphibians = X.

REVISE Create a one-page Mammalia checklist: 7 cervical vertebrae, thecodont/diphyodont/heterodont teeth, alveolar lungs, 12 pairs of cranial nerves. · In negative MCQs, label each option as typical/not typical before selecting.

244 **Answer: C** Ref 1065

Medium | ~0.5 min | Extremophiles / Archaebacteria

Barophilic prokaryotes are pressure-loving microorganisms. They grow best under very high hydrostatic pressure, such as conditions found in deep oceans and very deep marine sediments. The term barophilic is related to pressure, not barium. Therefore, the correct option is C.

COMMON TRAPS

- **Confusing "barophilic" with barium-containing conditions.** "Barophilic" means pressure-loving; it is related to high hydrostatic pressure, not barium compounds. *Avoid it:* Before looking at options, decode the suffix/prefix: "baro" = pressure, "philic" = loving.
- **Equating barophiles with alkaliphiles/psychrophiles by picking the harshest environment.** Barophiles specifically prefer high pressure; alkaline lakes indicate alkaliphiles, frozen conditions indicate psychrophiles, and high altitude does not imply high hydrostatic pressure. *Avoid it:* Match the exact stress factor in the organism name to the option: baro = pressure/deep sea, not pH/cold/altitude.

REVISE Extremophile prefixes with habitat examples: barophiles—deep sea/high pressure; halophiles—salt; thermophiles—heat; acidophiles—acidic pH; alkaliphiles—alkaline pH; psychrophiles—cold. · When solving classification MCQs, decode the biological term before reading options to avoid distractor words that sound similar.

245 **Answer: C** Ref 1067

Medium | ~0.5 min | Diatoms and Cyanobacteria

Auxospores are enlarged reproductive or restorative spores formed in some diatoms, mainly helping restore normal cell size after repeated divisions. Hormocysts are thick-walled hormogonia formed in several cyanobacteria, helping in reproduction and perennation. Therefore, auxospores and hormocysts are formed respectively by some diatoms and several cyanobacteria.

COMMON TRAPS

- **Reversing the 'respectively' order.** Auxospores are formed by some diatoms; hormocysts are formed by several cyanobacteria. *Avoid it:* Draw a two-column mapping before checking options: Auxospores → diatoms; Hormocysts → cyanobacteria.
- **Treating auxospores as a cyanobacterial structure.** Auxospores are specifically enlarged reproductive/restorative spores of diatoms, not cyanobacteria. *Avoid it:* Link the prefix "auxo-" with increase/enlargement of diatom cell size after repeated divisions.

REVISE Diatoms and cyanobacteria in a comparison table with structures and functions. · For every MCQ containing "respectively", map term 1 to option part 1 and term 2 to option part 2 before selecting.

246 **Answer: B** Ref 1085

Medium | ~0.5 min | Stelar system in pteridophytes

Ectophloic siphonostele is a type of siphonostele in which the xylem surrounds a central pith and phloem is present only on the outer side of the xylem. It is commonly found in Osmunda and Equisetum. In contrast, amphiphloic siphonostele has phloem on both outer and inner sides of xylem, and dictyostele is formed when leaf gaps overlap to break the stele into meristeles.

247 **Answer: D** Ref 1109

Easy | ~0.5 min | Body cavity and classification of animal phyla

Platyhelminthes are acoelomate animals, meaning they lack a body cavity. Annelids are coelomate animals, meaning they possess a true body cavity. Both platyhelminths and annelids show bilateral symmetry, so bilateral symmetry is not a contrasting feature. Pseudocoel is seen in Aschelminthes/Nematoda, not Platyhelminthes. Therefore, the feature shown by platyhelminths in contrast to annelids is absence of body cavity.

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248 **Answer: C** Ref 1120

Easy ~0.5 min Protozoans - Ciliates

Paramecium is a ciliated protozoan that shows nuclear dimorphism. It has a macronucleus, which controls trophic or vegetative functions such as metabolism and growth, and one or more micronuclei, which are involved in reproduction, especially conjugation. Euglena, Amoeba, and Trypanosoma do not show this typical macro-nucleus and micro-nucleus arrangement.

COMMON TRAPS

- **Confusing macronucleus/micronucleus arrangement with general unicellularity.** The defining feature asked is nuclear dimorphism: a macronucleus for vegetative/trophic functions and micronucleus/micronuclei for reproduction, characteristic of ciliates such as Paramecium. *Avoid it:* Underline the differentiating phrase after the general category: "macro-nucleus for trophic function" + "micro-nuclei for reproduction". Then match it to the organism group Ciliata, not merely to unicellularity.
- **Reading the nuclear clue as two separate nuclei in any protozoan, not nuclear dimorphism of ciliates.** Amoeba has a single typical nucleus, not a macronucleus and micronucleus arrangement. Paramecium has nuclear dimorphism. *Avoid it:* Check whether the option specifically belongs to ciliates and is known for macronucleus/micronucleus. If not, eliminate it.

REVISE Protozoan groups by diagnostic features, not only examples: ciliates = cilia + nuclear dimorphism; amoeboids = pseudopodia; flagellates = flagella. · Memorize the role pairing: macronucleus → trophic/vegetative/metabolic control; micronucleus → reproduction/conjugation.

249 **Answer: B** Ref 1145

Easy ~0.5 min Lichens

In lichens, the fungal partner is called the mycobiont and the algal partner is called the phycobiont. The fungus provides protection, anchorage, and helps in absorption of water and minerals. The alga performs photosynthesis and provides food. Hence, the correct answer is option B.

COMMON TRAPS

- **Role reversal between algal and fungal partners.** In lichens, the algal partner/phycobiont performs photosynthesis and provides food; the fungal partner/mycobiont provides protection, anchorage, and absorption. *Avoid it:* Before reading options, write F = protection/anchorage/absorption; A = food/photosynthesis.
- **Assuming the fungus fixes nitrogen.** The fungus is not the nitrogen-fixing partner in lichens; the standard NEET role of fungus is protection, anchorage, and absorption. *Avoid it:* Check the organism doing the action: nitrogen fixation is bacterial/cyanobacterial, not fungal, in this context.

REVISE Memorize lichen partner names: mycobiont = fungus, phycobiont = alga. · Use a two-column role chart: fungus gives protection/anchorage/absorption; alga gives food by photosynthesis.

250 **Answer: C** Ref 842

Easy ~0.5 min Echinodermata - Symmetry

Echinoderms show bilateral symmetry in their larval or young stage, while adults show pentamerous radial symmetry. Examples include starfish, sea urchins, and sea cucumbers. Hence, the correct phylum is Echinodermata.

251 **Answer: D** Ref 843

Easy ~0.5 min Phylum Arthropoda - body segmentation in classes

In phylum Arthropoda, different classes show different body divisions. In Arachnida and Crustacea, the head and thorax are commonly fused to form a cephalothorax. In Myriapoda, the body is usually divided into head and trunk. In class Insecta, the body is clearly divided into three regions: head, thorax and abdomen. Therefore, the correct answer is Insecta.

252 **Answer: D** Ref 863

Easy ~0.5 min Angiosperms and their adaptability

Angiosperms are the most successful and dominant land plants mainly because they can adapt to a wide variety of habitats. They show great diversity in form, reproductive strategies, pollination mechanisms, seed and fruit dispersal, and ecological tolerance. Producing many seeds helps survival, but the primary reason for their dominance is their high adaptability in diverse habitats.

253 **Answer: C** Ref 876

Easy ~0.5 min Lichens

Lichens are a mutualistic or symbiotic association between an alga and a fungus. The algal partner performs photosynthesis and provides food, while the fungal partner provides shelter, water, and mineral absorption. Therefore, the fungus has a symbiotic relationship with the alga.

COMMON TRAPS

- **Reading "combination" as surface growth, leading to epiphytic.** Epiphytic means growing on another organism for support, not a nutritional mutual association. Lichen is an intimate mutualistic/symbiotic association between fungus and alga/cyanobacterium. *Avoid it:* Before selecting A, ask whether the option describes only physical support or exchange of benefits.
- **Overgeneralising fungi as parasites, leading to option B.** In lichens, the alga provides photosynthetic food, but the fungus provides shelter, water, and minerals; the association is not classified as parasitism in standard NEET biology. *Avoid it:* Check whether the stem or explanation implies harm to the algal partner. No harm is stated; benefits are reciprocal.

REVISE Relationship terms with examples: symbiotic/mutualistic, parasitic, saprophytic, epiphytic. · Memorise the NEET one-liner: lichens are symbiotic associations of algae and fungi.

254 **Answer: C** Ref 900

Easy ~0.5 min Cyanobacteria and nitrogen fixation

Anabaena is a nitrogen-fixing cyanobacterium. It can live freely and also forms a symbiotic association with the water fern Azolla, especially as Anabaena azollae. This association is important in paddy fields because it enriches soil nitrogen. Chlorella is a green alga, Nostoc is also nitrogen-fixing but is not the classic symbiont of Azolla, and Tolypothrix is not the correct association here.

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COMMON TRAPS

- **Choosing Nostoc because of the phrase "free living nitrogen-fixing cyanobacterium".** The Azolla symbiont asked in NEET is Anabaena, specifically Anabaena azollae, not Nostoc. *Avoid it:* Underline both clues: nitrogen-fixing cyanobacterium + Azolla symbiosis; the second clue decides between Nostoc and Anabaena.
- **Misreading "water fern Azolla" as any aquatic algal association.** Azolla is a water fern; its nitrogen-fixing symbiont is the cyanobacterium Anabaena azollae. *Avoid it:* When the stem says "water fern Azolla," recall the fixed pair: Azolla–Anabaena.

REVISE NCERT examples of cyanobacteria: Nostoc, Anabaena, Oscillatoria, and their roles. · Memorize the specific association Azolla–Anabaena azollae for paddy-field nitrogen enrichment.

255 **Answer: A** Ref 912

Easy | ~0.5 min | General characters of Mammalia

The diaphragm is a muscular partition between the thoracic cavity and abdominal cavity and is a characteristic unique feature of mammals. A four-chambered heart is also present in birds and crocodiles, rib cage is present in many vertebrates, and homeothermy is seen in both birds and mammals. Therefore, the most unique mammalian feature among the given options is the presence of diaphragm.

256 **Answer: A** Ref 915

Medium | ~0.5 min | Contractile vacuole and osmoregulation in protozoa

Freshwater protozoans have contractile vacuoles because water continuously enters their body by endosmosis in a hypotonic freshwater environment. The contractile vacuole collects and expels this excess water to maintain osmotic balance. Marine water is relatively hypertonic, so excess water will not enter the protozoan; instead, water entry is greatly reduced or may even move out. Therefore, the need for a contractile vacuole is lost, and it will disappear or become non-functional. Hence, the correct answer is A.

257 **Answer: D** Ref 918

Easy | ~0.5 min | Gymnosperms - Living Fossils

Cycas is considered a living fossil because it belongs to an ancient group of gymnosperms that has survived for millions of years with relatively little change in its basic structure. Moss is a bryophyte, Saccharomyces is a fungus, and Spirogyra is a green alga, so they are not the correct choice here.

COMMON TRAPS

- **Treating any old/simple plant as a living fossil.** A living fossil is an extant organism resembling ancient fossil forms with little structural change; in NCERT Plant Kingdom examples, "Cycas" is the expected gymnosperm example. *Avoid it:* Before selecting, ask whether the option is a named NCERT living fossil example, not merely primitive.
- **Missing the chapter cue: Gymnosperms - Living Fossils.** Among the options, only "Cycas" is a gymnosperm; the explanation says it "belongs to an ancient group of gymnosperms". *Avoid it:* Use taxonomy elimination: Moss=bryophyte, Saccharomyces=fungus, Spirogyra=green alga, Cycas=gymnosperm.

REVISE NCERT Plant Kingdom examples where genus names are directly asked. · Practice taxonomy elimination for one-line NEET factual MCQs.

258 **Answer: A** Ref 919

Easy | ~0.5 min | Sexual reproduction in algae - Oogamy

Oogamy is a type of sexual reproduction in which the two gametes are very different in size and motility. The female gamete is large, food-rich, and non-motile, while the male gamete is small and motile. Therefore, fertilization in oogamy involves a large non-motile female gamete and a small motile male gamete.

COMMON TRAPS

- **Confusing oogamy with anisogamy/isogamy.** In oogamy, the female gamete/egg is large and non-motile; the male gamete/antherozoid is small and motile. *Avoid it:* Before checking options, write the two-word tag: oogamy = large non-motile female + small motile male.
- **Treating the male gamete as non-motile because plant sperm are often thought of as passive.** In oogamous algae, the male gamete is small and motile; fertilization requires it to move toward the egg. *Avoid it:* For algae oogamy, check the male gamete motility word in the option: it must be "motile", not "non-motile".

REVISE The definitions of isogamy, anisogamy, and oogamy as a comparison table. · Memorize oogamy using the fixed pair: egg/female = large non-motile; sperm/male = small motile.

259 **Answer: D** Ref 925

Easy | ~0.5 min | Vegetative propagation through leaf tip

Walking fern propagates vegetatively through its leaf tip. The long fronds bend down and touch the soil; the leaf tip develops roots and gives rise to a new plant. Sprout-leaf plant, commonly Bryophyllum, propagates by adventitious buds on leaf margins, not specifically by leaf tip. Marchantia propagates mainly by gemmae, and mosses commonly propagate by spores or fragmentation.

COMMON TRAPS

- **Confusing leaf-tip propagation with leaf-margin buds in Bryophyllum.** Bryophyllum forms adventitious buds on the leaf margins, whereas walking fern forms a new plant when the leaf tip touches soil and roots. *Avoid it:* Underline the modifier in the stem: "leaf-tip". Ask whether the plant propagates from the tip specifically, not just from any leaf part.
- **Treating Marchantia gemmae as leaf-tip propagation.** Marchantia propagates mainly by gemmae; it does not use a fern-like leaf tip rooting mechanism. *Avoid it:* For bryophytes/liverworts, recall the named structure first: Marchantia → gemma cups/gemmae.

REVISE Plant examples by exact propagating structure, not only by group name. · Make a quick NEET table of vegetative propagation: Bryophyllum/Kalanchoe—leaf margin buds; walking fern—leaf tip; Marchantia—gemmae; moss—spores/fragmentation.

260 **Answer: D** Ref 928

Easy | ~0.5 min | Taxonomy and Systematics

Phenetic classification, also called numerical taxonomy, classifies organisms based on overall observable similarities and differences among existing organisms. It does not primarily focus on evolutionary ancestry, DNA-based dendrograms, or only sexual characteristics. Therefore, the correct answer is observable characteristics of existing organisms.

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COMMON TRAPS

- **Confusing phenetic classification with phylogenetic/ancestral classification.** Phenetic classification/numerical taxonomy groups organisms by overall observable similarities among existing organisms, not by inferred ancestry. *Avoid it:* Underline "Phenetic" and ask: is this about phenotype/observable similarity or phylogeny/ancestry? Choose option D, not A.
- **Over-narrowing observable characters to only sexual characters.** Phenetic classification is based on overall observable characteristics, not only one category like sexual characteristics. *Avoid it:* When an option says "only" implicitly by naming one narrow trait type, compare it with a broader option like D: "Observable characteristics of existing organisms."

REVISE The distinctions among phenetic, phylogenetic, cladistic, and molecular taxonomy. · For one-line taxonomy MCQs, identify the exact basis word in each option before selecting.

261 **Answer: B** Ref 978

Easy ~0.5 min Viruses and Bacteriophages

Viruses that infect bacteria are called bacteriophages. When such viruses multiply inside the bacterial cell and finally cause bursting or lysis of the host cell, they follow the lytic cycle. Hence, they are called lytic viruses or lytic bacteriophages. Lysogenic viruses, in contrast, integrate their genetic material into the host genome and may remain dormant without immediately causing lysis.

262 **Answer: D** Ref 615

Easy ~0.5 min Viruses

Viruses are considered obligate intracellular parasites. Outside a living host cell, they do not show active metabolism, growth, respiration, or independent reproduction. Similarly, isolated chromosomes cannot replicate by themselves outside the cellular environment. Both need the machinery and environment of a living cell for replication, so option D is correct.

COMMON TRAPS

- **Assuming viruses contain both nucleic acids.** The key comparison in "Viruses are no more \"alive\" than isolated chromosomes" is dependence on a cell for replication, not possession of both nucleic acids. *Avoid it:* Before choosing option A, ask whether the statement is universally true for all viruses. If even one major viral group has only RNA or only DNA, reject it.
- **Treating 'food molecules' as a requirement for viruses.** Viruses outside host cells do not ingest food or perform metabolism; isolated chromosomes do not feed either. The issue is replication machinery, not nutrition. *Avoid it:* Check whether the option describes metabolism/nutrition or replication. For viruses, the standard NEET cue is obligate intracellular parasite requiring living cell machinery.

REVISE Viruses as obligate intracellular parasites and their inert nature outside host cells. · Memorize that viruses contain either DNA or RNA, not both as a universal rule.

263 **Answer: B** Ref 644

Medium ~1 min Animal life cycles and adaptations

Musca, the housefly, undergoes complete metamorphosis with four distinct stages: egg, larva, pupa, and adult. Pheretima is an earthworm and is hermaphroditic, so sexual dimorphism is not shown. Chameleon mainly shows camouflage or protective colour change, not true mimicry. Taenia does not exhibit polymorphism in the standard zoological sense.

264 **Answer: D** Ref 653

Medium ~1 min Life cycle of Fasciola hepatica

In the life cycle of Fasciola hepatica, the miracidium larva hatches from the egg and infects the intermediate host, which is usually a freshwater snail. Inside the snail, it develops through stages like sporocyst, redia and cercaria. The cercaria comes out of the snail and encysts on aquatic vegetation as metacercaria. The primary or definitive host, such as sheep, cattle or humans, gets infected by ingesting the metacercaria. Therefore, the intermediate host is infected by miracidium and the primary host is infected by metacercaria.

COMMON TRAPS

- **Reversing the 'respectively' order of hosts.** 'Respectively' locks the order: first larval stage = infects intermediate host; second larval stage = infects primary/definitive host. For Fasciola hepatica: intermediate host snail is infected by miracidium; primary host sheep/cattle/humans are infected by metacercaria. *Avoid it:* Before checking options, write two blanks: intermediate host = ____; primary host = ____. Fill them independently, then match the option.
- **Confusing cercaria with metacercaria as the infective stage for the primary host.** In Fasciola hepatica specifically, "The cercaria comes out of the snail and encysts on aquatic vegetation as metacercaria." The definitive/primary host gets infected by ingesting the encysted metacercaria, not by cercaria. *Avoid it:* Use the sequence: miracidium → snail → sporocyst → redia → cercaria → vegetation/metacercaria → sheep/cattle/humans.

REVISE The Fasciola life-cycle as a host-location flowchart, not as a plain list of larval names. · Memorize two anchor pairs: miracidium infects snail; metacercaria infects definitive mammal via vegetation.

265 **Answer: B** Ref 654

Easy ~0.5 min Porifera

Sycon belongs to phylum Porifera, commonly called sponges. Poriferans are multicellular animals but they show cellular level of organization, meaning true tissues and organs are absent. Therefore, Sycon is best described as multicellular without any tissue organization. Option C describes animals like cnidarians that have a gastrovascular cavity, and option D refers to acoelomate animals with tissue or organ-system level organization.

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COMMON TRAPS

- **Reading “group of animals” too broadly and choosing Protozoa-like description.** Sycon is a sponge under phylum Porifera; sponges are multicellular animals with cellular level of organization, not unicellular/acellular. *Avoid it:* Before selecting, map the example to phylum: Sycon → Porifera → multicellular, cellular grade, no true tissues.
- **Interpreting “without any tissue organization” as “not an animal” or “unicellular”.** Poriferans are multicellular but cells are loosely aggregated; they lack true tissues and organs. *Avoid it:* Separate two checks: number of cells = multicellular; level of organization = cellular, not tissue.

REVISE NCERT Animal Kingdom examples phylum-wise, especially Porifera vs Cnidaria vs Platyhelminthes. · Memorize the body organization sequence: Porifera—cellular level; Cnidaria/Ctenophora—tissue level; Platyhelminthes onward—organ/organ-system level.

266 **Answer: D** Ref 663

Medium | ~1 min | Bacterial chromosome

Bacterial chromosomes are commonly circular, but they are not always circular. Some bacteria have linear chromosomes, and a few bacteria can possess both circular and linear chromosomes within the same cell. For example, Agrobacterium tumefaciens has both circular and linear chromosomal DNA. Therefore, bacterial chromosomes can be circular as well as linear within the same cell.

COMMON TRAPS

- **Treating “commonly circular” as “always circular”.** In bacteria, circular chromosomes are common, not universal. The word “always” makes option A too restrictive because some bacteria have linear chromosomes. *Avoid it:* Circle absolute qualifiers such as “always,” “never,” and “only” before choosing. Ask whether even one known exception exists; if yes, reject the absolute option.
- **Overcorrecting to “always linear” after seeing exceptions to circular DNA.** The presence of some linear chromosomes does not mean all bacterial chromosomes are linear. Most bacterial chromosomes are circular, while some are linear. *Avoid it:* Convert universal options into test statements: “Every bacterial chromosome is linear.” Then check against the basic fact that many bacteria, like E. coli, have circular chromosomes.

REVISE Bacterial chromosome exceptions: commonly circular is not the same as always circular. · Memorise the example Agrobacterium tumefaciens = both circular and linear chromosomal DNA.

267 **Answer: B** Ref 700

Medium | ~1 min | Biosystematics and Taxonomy

Biosystematics, also called new systematics, aims to study organisms using a wide range of evidence such as morphology, cytology, genetics, ecology and biochemistry. Its main purpose is to delimit various taxa correctly and establish their natural relationships. Option A is too narrow because it focuses only on morphology. Option D is also too narrow because it focuses only on cytological characters. Option C describes a broader phylogenetic approach, but the standard aim of biosystematics is best represented by delimiting taxa and establishing their relationships.

COMMON TRAPS

- **Treating biosystematics as only morphology-based classification.** Biosystematics/new systematics uses multiple lines of evidence and aims at delimiting taxa and establishing natural relationships, not only broad morphology. *Avoid it:* When an option contains 'only one evidence type' such as morphology, cytology, genetics etc., check whether the term is classical taxonomy or biosystematics.
- **Confusing biosystematics with phylogenetic systematics.** The standard stated aim of biosystematics in this question is delimiting taxa and establishing relationships; option C overstates the aim as phylogeny based on totality of parameters. *Avoid it:* Match the direct aim asked by 'aims at' to the textbook phrase, not the most elaborate description.

REVISE The distinction between taxonomy, systematics, biosystematics/new systematics, and phylogenetics. · For each option, underline whether it mentions a single evidence source or the aim of defining taxa and relationships.

268 **Answer: D** Ref 703

Easy | ~0.5 min | Five-Kingdom Classification; Kingdom Monera

In Whittaker's five-kingdom classification, all prokaryotic organisms are placed in Kingdom Monera. Archaea are prokaryotes, and nitrogen-fixing bacteria such as Rhizobium and cyanobacteria are also prokaryotic organisms. Therefore, both are classified under Kingdom Monera.

269 **Answer: D** Ref 706

Medium | ~1 min | Spermatophyta / Seed-bearing plants

Spermatophyta refers to seed-bearing plants. In traditional plant classification, Spermatophyta includes Gymnosperms and Angiosperms. Ginkgo is a gymnosperm, while Pisum is an angiosperm. So this pair correctly represents the two major groups included under Spermatophyta. Rhizopus is a fungus, so option C is clearly incorrect. Pinus and Cycas are both gymnosperms, and Acacia and Sugarcane are both angiosperms, so they do not represent the broader grouping as well as Ginkgo and Pisum.

270 **Answer: A** Ref 707

Easy | ~0.5 min | Cryptogams

Mosses and ferns reproduce by spores and do not produce flowers or seeds. Such plants are collectively called cryptogams. Bryophytes include mosses but not ferns, while thallophytes mainly include algae-like simple plants. Therefore, the general term for spore-producing plants like mosses and ferns is cryptogams.

271 **Answer: C** Ref 712

Medium | ~0.5 min | Bryophytes and chlorenchyma

Chlorenchyma is chlorophyll-containing parenchymatous tissue that performs photosynthesis. In mosses, the sporophyte capsule may contain green photosynthetic tissue called chlorenchyma. Chlorella is unicellular, so it does not have tissues like chlorenchyma. Aspergillus is a fungus and lacks chlorophyll. The pollen tube of Pinus is involved in male gamete transport, not photosynthesis. Hence, chlorenchyma is found in the spore capsule of a moss.

272 **Answer: C** Ref 715

Easy | ~0.5 min | Viruses - Tobacco Mosaic Virus

Tobacco mosaic virus, or TMV, is a rod-shaped/tubular virus. Its standard size is approximately 300 nm in length and

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about 18 nm in diameter. Since 18 nm is commonly rounded to 20 nm in options, the correct size is 300 × 20 nm.

273 **Answer: B** Ref 716

Medium | ~0.5 min | Gymnosperms - Living fossils

A living fossil is a living group that has changed little from forms known only as ancient fossils.

Step 1. Cycas belongs to the cycads, an ancient gymnosperm group that flourished in the Mesozoic era and has survived almost unchanged, so it is the classic example of a living fossil.

Step 2. Pinus and Selaginella are common living genera and are not described as living fossils.

Step 3. Metasequoia is also sometimes called a living fossil, but the expected answer for this question is the textbook example, Cycas.

Answer: (B) Cycas

COMMON TRAPS

- **Picking Selaginella because it is a primitive plant.** Selaginella is an old pteridophyte group, but the textbook living fossil is Cycas, a cycad that has changed little since the Mesozoic era. *Avoid it:* Match the option to the standard textbook example of a living fossil, not to a general sense of being primitive.
- **Picking Pinus because it is a gymnosperm.** Being a gymnosperm does not make a plant a living fossil; Pinus is a widespread modern conifer. *Avoid it:* Check two things separately: the plant group, and whether the plant is named as a living fossil.

REVISE Living fossil examples such as Cycas and Ginkgo. · The main features of cycads among gymnosperms.

274 **Answer: D** Ref 718

Medium | ~1 min | Algae - Spirogyra and Sexual Reproduction

In Spirogyra, sexual reproduction occurs by conjugation. The gametes are morphologically similar and non-motile, so they do not show different size or motility. However, they are physiologically different: one gamete behaves as the active/male gamete and moves through the conjugation tube, while the other remains passive/female. This physiological differentiation is considered an advanced feature.

275 **Answer: B** Ref 719

Easy | ~0.5 min | Taxonomy and Systematics

Phenetic classification classifies organisms mainly on the basis of overall observable similarities and differences. It does not primarily focus on evolutionary ancestry or phylogenetic relationships. Therefore, phenetic classification is based on observable characteristics of existing organisms.

COMMON TRAPS

- **Confusing phenetic classification with phylogenetic/ancestral classification.** Phenetic classification is based on overall observable similarities and differences, not on ancestry. Phylogenetic/cladistic classification deals with ancestral lineage and evolutionary relationships. *Avoid it:* Before selecting an option, match the root idea: phenetic = phenotype/observable characters; phylogenetic = evolutionary ancestry.
- **Over-interpreting DNA-based dendrograms as phenetic classification.** In this question, phenetic classification rests on "overall observable similarities and differences" among existing organisms. DNA-based dendrograms are molecular/phylogenetic tools, not the expected NEET-level definition of phenetic classification here. *Avoid it:* Check whether the option says observable existing characters or molecular/evolutionary data. For this MCQ, observable organismal traits point to phenetic.

REVISE The distinction: phenetic = overall observable similarity; phylogenetic/cladistic = evolutionary ancestry/common descent. · While solving taxonomy MCQs, underline the basis of classification stated in each option.

276 **Answer: A** Ref 721

Easy | ~0.5 min | Seed-producing and non-seed-producing plants

Fern is a pteridophyte and reproduces by spores, not seeds. Funaria is a bryophyte and also reproduces by spores, not seeds. Therefore, both Fern and Funaria are non-seed-producing plants. Ficus and Punica are angiosperms, while Pinus is a gymnosperm; these produce seeds. Chlamydomonas is an alga and does not produce seeds, but in option C it is paired with Ficus, which is a seed producer. Hence, the correct pair is Fern and Funaria.

COMMON TRAPS

- **Ignoring the word 'pairs' and choosing a pair with only one non-seed producer.** A correct option must have two non-seed producers. Fern is pteridophyte and Funaria is bryophyte; both reproduce by spores. Ficus is an angiosperm and produces seeds. *Avoid it:* For every option, label each plant separately as seed producer/non-seed producer before selecting the pair.
- **Misclassifying Fern as a seed plant.** Fern is a pteridophyte and reproduces by spores, not seeds. *Avoid it:* Remember the sequence: bryophytes and pteridophytes are cryptogams and seedless; gymnosperms and angiosperms are phanerogams and seed-producing.

REVISE NCERT Plant Kingdom examples by group and reproductive unit: algae/bryophytes/pteridophytes = no seeds; gymnosperms/angiosperms = seeds. · For paired-option questions, classify both members before choosing.

277 **Answer: C** Ref 722

Easy | ~0.5 min | Viruses

Viruses do not have their own complete metabolic machinery, so they cannot reproduce independently outside a living host cell. They use the host cell machinery for replication, which makes them obligate intracellular parasites. Option A is incorrect because viruses lack an independent metabolic system. Option B is incorrect because a virus contains either DNA or RNA as genetic material, not both. Option D is incorrect because the capsid is the protein coat of a virus, not its nucleic acid.

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COMMON TRAPS

- **Treating viruses as metabolically independent cells.** Viruses lack independent enzymes/ribosomes/energy-producing machinery needed for metabolism and replication outside a host. *Avoid it:* Before marking any virus statement true, check whether it claims independent metabolism or independent reproduction; both should be false for viruses.
- **Thinking all viruses contain both DNA and RNA.** A given virus has either DNA or RNA as its genetic material, not both as the main genome. *Avoid it:* Circle absolute words like "All", "always", and "both" in options; for viruses, check whether the option says either-or versus both.

REVISE NCERT virus basics: acellular nature, genetic material, capsid, and host-dependent replication. · For each option, mark absolute qualifiers such as "all", "both", "own", and "known as" before deciding.

278 **Answer: A** Ref 723

Easy ~0.5 min Species and Taxonomic Hierarchy

Species are regarded as the basic and real units of classification because members of a species show maximum similarity and can interbreed naturally to produce fertile offspring. Although species is also the lowest major taxonomic category, the best answer here is that species are real basic units of classification. They are not merely artificial concepts devised by taxonomists.

COMMON TRAPS

- **Choosing “lowest” instead of “basic and real”.** Species are considered the "Real basic units of classification" because members show maximum similarity and can interbreed naturally to produce fertile offspring. "Lowest" is true in a limited taxonomic-rank sense, but not the best completion here. *Avoid it:* When two options seem factually close, match the key phrase asked by the stem to the conceptual emphasis in standard wording: species = basic unit + real unit.
- **Misreading “devised by taxonomists” as equivalent to “used by taxonomists”.** Taxonomists identify, describe, and classify species; they do not "devise" species as artificial units. Species exist as real biological groups. *Avoid it:* Evaluate every clause of an option. A partially correct option becomes wrong if a later phrase changes the meaning.

REVISE Memorize the standard NCERT phrasing: species = basic unit of classification and a real biological unit. · While solving taxonomy MCQs, separate rank-position facts from definition/significance facts.

279 **Answer: B** Ref 733

Medium ~1 min Respiratory organs in animals

Silver fish is an insect, and insects respire through a tracheal system, so A is correct. Scorpions are arachnids and commonly possess book lungs for respiration, so B is correct. Sea squirt is a urochordate with pharyngeal gill slits involved in respiration and filter feeding, so C is correct. Dolphin is a mammal and respires through lungs, not skin, so D is incorrect. Therefore, the correct matchings are A, B and C.

COMMON TRAPS

- **Confusing silverfish with fish and rejecting trachea.** Silverfish/Lepisma is an insect. Insects respire through a tracheal system, so the matching "Silver fish — trachea" is correct. *Avoid it:* Before judging the respiratory organ, first identify the animal group. Write: Silverfish = insect ⇒ tracheae. Do not infer habitat or organ from the common name alone.
- **Assuming all arthropods have the same respiratory organ.** Respiratory organs vary within Arthropoda: insects mainly use tracheae, while scorpions/spiders as arachnids commonly use book lungs, sometimes tracheae in some forms. *Avoid it:* For arthropods, identify the class first: Insecta ⇒ tracheae; Arachnida, especially scorpion ⇒ book lungs.

REVISE Respiratory organs by animal group: insects—tracheae; arachnids/scorpions—book lungs; urochordates—pharyngeal gill slits; mammals—lungs. · Create a list of misleading animal common names where the name does not reveal the taxonomic group.

280 **Answer: A** Ref 738

Easy ~0.5 min Encystment in Amoeba

Encystment in Amoeba is mainly a survival mechanism. During adverse conditions such as lack of food, drying of water, or unfavorable temperature, Amoeba secretes a resistant cyst wall around itself. This protective cyst helps it remain dormant until favorable conditions return. Therefore, the chief advantage of encystment is survival during adverse physical conditions.

COMMON TRAPS

- **Treating ‘lack of food’ as the chief advantage instead of an example of adverse conditions.** Encystment is mainly for survival during adverse physical conditions; lack of food is only one such adverse condition, not the chief advantage as framed by the question. *Avoid it:* When the stem asks “chief advantage,” prefer the option that covers the widest correct biological purpose rather than a single example.
- **Ignoring the word ‘chief’ in the stem.** For Amoeba, the primary role of cyst formation is dormancy and survival under unfavorable external conditions. *Avoid it:* Underline superlatives or priority words like “chief,” “mainly,” “primary,” and “best.”

REVISE Encystment as a dormancy/survival mechanism in Amoeba under unfavorable conditions. · Practice distinguishing broad correct options from partially correct but non-chief options.

281 **Answer: A** Ref 438

Easy ~0.5 min Bacterial growth curve

The bacterial growth curve has four main phases in correct order: Lag phase, where bacteria adapt to the medium and show little division; Log or exponential phase, where rapid multiplication occurs; Stationary phase, where growth rate equals death rate due to nutrient limitation and waste accumulation; and Decline or death phase, where bacterial death exceeds new cell formation. Therefore, the correct sequence is Lag, Log, Stationary, Decline phase.

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COMMON TRAPS

- **Omitting the fourth phase because Option B looks nearly complete.** The explanation states: "The bacterial growth curve has four main phases in correct order: Lag phase... Log or exponential phase... Stationary phase... and Decline or death phase". A correct sequence must include all four phases, not only the first three. *Avoid it:* Before marking an option, count the phases. The expected number is 4: Lag, Log, Stationary, Decline/death.
- **Interchanging Lag and Stationary phases.** "Lag phase" is the initial adaptation stage where bacteria "adapt to the medium and show little division". "Stationary phase" occurs later, when "growth rate equals death rate due to nutrient limitation and waste accumulation". *Avoid it:* Ask what causes the no-net-increase: initial adaptation = Lag; nutrient exhaustion/death balancing division = Stationary.

REVISE The four-phase order with the mnemonic La-Lo-Sta-De: Lag → Log → Stationary → Decline. · Practice drawing and labelling the bacterial growth curve, including the final death/decline phase.

282 **Answer: B** Ref 449

Easy ~0.5 min Nutrition in Bacteria / Chemoautotrophs

Chemoautotrophs obtain energy by oxidising reduced inorganic compounds such as ammonia, nitrites, hydrogen sulphide, or ferrous ions. They use this energy to synthesize organic food from CO_2. Photoautotrophs use light as the energy source, while saprozoic organisms absorb nutrients from dead organic matter. Therefore, the correct answer is Chemo autotrophs.

283 **Answer: B** Ref 459

Easy ~0.5 min Molecular phylogeny using rRNA sequences

rRNA sequences, especially 16S rRNA in prokaryotes, are widely used to determine phylogenetic relationships because rRNA is present in all organisms, evolves slowly, and has conserved as well as variable regions. This makes it useful for comparing evolutionary relationships among organisms. Hence, the correct answer is rRNA.

COMMON TRAPS

- **Choosing DNA because it is the hereditary material.** For this NEET context, the expected marker for phylogeny/classification is "rRNA" because, as the explanation says, "rRNA sequences, especially 16S rRNA in prokaryotes, are widely used to determine phylogenetic relationships". *Avoid it:* When the question asks generally about phylogeny in Biological Classification and options include rRNA, treat rRNA as the specific molecular chronometer rather than choosing the broad molecule DNA.
- **Confusing rRNA with mRNA because both are RNA sequences.** The explanation specifically says rRNA is used because it is "present in all organisms, evolves slowly, and has conserved as well as variable regions". mRNA is not universal for one comparable gene across all organisms and changes more depending on expressed genes. *Avoid it:* Ask whether the molecule is universal and conserved enough for comparing distant organisms. rRNA fits this; mRNA generally does not.

REVISE Memorize the association: phylogeny in Biological Classification → rRNA sequence, especially 16S rRNA in prokaryotes. · Why rRNA is suitable: universal presence, slow evolution, conserved plus variable regions.

284 **Answer: D** Ref 460

Easy ~0.5 min Gymnosperms

Pinus is a gymnosperm. Gymnosperms are seed-producing plants, but they do not form true flowers or fruits. Their seeds are usually naked and borne on cones. Maize, Mint, and Peepal are angiosperms, so they produce flowers and enclosed seeds. Therefore, the plant that produces seeds but not flowers is Pinus.

285 **Answer: B** Ref 465

Easy ~0.5 min Five Kingdom Classification

In Whittaker's five kingdom classification, organisms were classified using criteria such as cell structure, body organization, mode of nutrition, reproduction, and phylogenetic relationships. Among the given options, nutrition is the most important basis because it clearly separates major kingdoms: Plantae are mainly autotrophic, Fungi are absorptive heterotrophs, and Animalia are ingestive heterotrophs. Structure of nucleus only helps distinguish prokaryotes from eukaryotes, while cell wall and asexual reproduction are not the main basis for the five kingdom system.

286 **Answer: A** Ref 470

Easy ~0.5 min Osmoregulation in Protozoa

In freshwater protozoans like Amoeba and Paramecium, excess water continuously enters the cell by osmosis because the surrounding water is hypotonic. The contractile vacuole collects this excess water and expels it outside the cell, helping in osmoregulation. Mitochondria produce energy, the nucleus controls cellular activities, and food vacuoles help in digestion, so they are not primarily responsible for osmoregulation.

COMMON TRAPS

- **Confusing contractile vacuole with food vacuole because both contain the word 'vacuole'.** A contractile vacuole is for osmoregulation: it collects excess water and expels it. A food vacuole is for digestion of engulfed food. *Avoid it:* When two options share a word, underline the differentiating adjective: "Contractile" means squeezes/expels water; "Food" means digestion.
- **Reading 'osmoregulation' as general digestion or excretion.** Osmoregulation means regulation of water and solute balance, especially expelling excess water in freshwater protozoans. *Avoid it:* Translate the term before looking at options: 'osmo' = water movement by osmosis; regulation = balancing. Then pick the organelle linked to water expulsion.

REVISE Functional differences between contractile vacuole and food vacuole in Amoeba/Paramecium. · Make a quick organelle-function table for mitochondria, nucleus, food vacuole, and contractile vacuole.

287 **Answer: A** Ref 481

Easy ~0.5 min Chordata - Notochord

Notochord is a defining characteristic of phylum Chordata. In all chordates, the notochord is present at least during the embryonic stage. In some chordates it persists throughout life, while in vertebrates it is usually replaced by the vertebral column in adults. Therefore, the correct answer is All chordates.

288 **Answer: D** Ref 482

Easy ~0.5 min Protozoa - Ciliates; nuclear dimorphism

Dimorphic nucleus means the organism has two different types of nuclei. Paramecium caudatum, a ciliate protozoan, shows nuclear dimorphism with a large macronucleus for

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metabolic activities and one or more small micronuclei for reproduction. Amoeba proteus, Trypanosoma gambiense, and Plasmodium vivax do not show this typical macronucleus-micronucleus nuclear dimorphism. Therefore, the correct answer is Paramecium caudatum.

COMMON TRAPS

- **Treating "dimorphic nucleus" as two nuclei of the same type.** Nuclear dimorphism means two morphologically and functionally different nuclei: macronucleus and micronucleus, not just presence of a nucleus or multiple nuclei. *Avoid it:* Before selecting, ask whether the organism has both a macronucleus and a micronucleus; only ciliates like Paramecium have this typical arrangement.
- **Confusing ciliate nuclear dimorphism with general protozoan classification.** Nuclear dimorphism is a hallmark of ciliates, not all protozoans. *Avoid it:* Filter the options by group first: Amoeba proteus = amoeboid protozoan, Trypanosoma gambiense = flagellate, Plasmodium vivax = sporozoan/apicomplexan, Paramecium caudatum = ciliate.

REVISE Protozoa classification by locomotory organ and diagnostic examples: Amoeba, Trypanosoma, Plasmodium, Paramecium. · Memorize the exact ciliate feature: macronucleus for metabolism and micronucleus for reproduction.

289 **Answer: C** Ref 492

Easy ~0.5 min Insectivorous plants and their botanical names

The correct matching of common names with botanical names is: Bladderwort is Utricularia, sundew is Drosera, and Venus flytrap is Dionaea. These are examples of insectivorous plants that trap insects to supplement nitrogen requirements, especially in nitrogen-poor habitats.

COMMON TRAPS

- **Matching Nepenthes to Bladderwort instead of Utricularia.** Bladderwort is Utricularia. Nepenthes is pitcher plant, not bladderwort. *Avoid it:* Before selecting, mentally write the pair: Bladderwort = Utricularia, then check whether the first term in the option is Utricularia.
- **Swapping Drosera and Dionaea for sundew and Venus flytrap.** Sundew is Drosera; Venus flytrap is Dionaea. *Avoid it:* Use the memory cue: 'SunDEW has DROSera' and 'Dionaea = Venus flytrap'.

REVISE Common-name to botanical-name pairs: Bladderwort–Utricularia, sundew–Drosera, Venus flytrap–Dionaea, pitcher plant–Nepenthes. · Practice rejecting options by position in matching questions rather than by familiarity of terms.

290 **Answer: D** Ref 496

Easy ~0.5 min Nervous system in lower animals

Hydra belongs to phylum Cnidaria. It has nerve cells arranged as a diffuse nerve net, but it does not have a centralized brain. Sponges do not have true nerve cells. Earthworm and cockroach have a more organized nervous system with cerebral ganglia, often referred to as a brain. Therefore, the animal with nerve cells present but brain absent is Hydra.

291 **Answer: A** Ref 497

Easy ~0.5 min Plasmids in Bacteria

Plasmids are small, circular, double-stranded DNA molecules present in bacteria outside the main bacterial chromosome. They are called extrachromosomal genetic material. They can replicate independently and often carry genes useful for survival, such as antibiotic resistance genes. Therefore, the correct answer is Extra chromosomal material.

COMMON TRAPS

- **Treating plasmid as the main bacterial chromosome.** A plasmid is "outside the main bacterial chromosome" and is "extrachromosomal genetic material", not the main chromosome itself. *Avoid it:* Before choosing, separate the bacterial chromosome/nucleoid from plasmids: chromosome = essential main genome; plasmid = additional small circular DNA.
- **Misreading 'extra chromosomal' as outside the cell or non-genetic.** In this context, "Extra chromosomal material" means DNA present outside the main bacterial chromosome, not outside the bacterium or unrelated material. *Avoid it:* Mentally rewrite 'extrachromosomal' as 'outside the chromosome but inside the bacterial cell'.

REVISE The difference between bacterial chromosome/nucleoid and plasmid. · Memorize the meaning of 'extrachromosomal' as outside the chromosome, not outside the cell.

292 **Answer: C** Ref 234

Easy ~0.5 min Digestion and Excretion in Hydra

Hydra has a gastrovascular cavity with only one opening, the mouth. Undigested food waste is egested through the mouth because there is no separate anus. Nitrogenous waste, mainly ammonia, diffuses out through the body wall into the surrounding water. Therefore, food digestion waste is removed through the mouth and nitrogenous waste through the body wall.

COMMON TRAPS

- **Treating both wastes as leaving through the single opening.** In Hydra, undigested food is egested through the mouth, but nitrogenous waste, mainly ammonia, diffuses through the body wall. *Avoid it:* Separate the two blanks in the stem: first is "waste material of food digestion" = egestion; second is "nitrogenous waste material" = excretion by diffusion.
- **Reversing the order of the two wastes.** The first option term must match food digestion waste; the second must match nitrogenous waste. Correct mapping is mouth first, body wall second. *Avoid it:* Underline the two terms in order: (1) food digestion waste → mouth; (2) nitrogenous waste → body wall.

REVISE Hydra digestion: gastrovascular cavity has one opening, so undigested food exits through the mouth. · Hydra excretion: ammonia diffuses through the body wall into surrounding water.

293 **Answer: D** Ref 235

Easy ~0.5 min Chordata - Post-anal tail

Post-anal tail is a characteristic feature of chordates. It is the extension of the body beyond the anal opening. Among the given options, snake is a vertebrate chordate and possesses a post-anal tail. Earthworm, lower invertebrates, and scorpion are non-chordates, so they do not show the true chordate post-anal tail.

294 **Answer: C** Ref 238

Medium ~0.5 min Respiratory Pigments

Haemocyanin is a copper-containing respiratory pigment commonly found in many arthropods and molluscs. Among the given options, Insecta belongs to Arthropoda, so it is the closest intended answer. However, at strict NCERT/NEET level, most insects do not use respiratory pigments because they respire through a tracheal system; haemocyanin is more

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typically associated with crustaceans and arachnids among arthropods. Annelids usually have haemoglobin or other pigments, echinoderms generally lack such blood pigments, and lower chordates do not typically have haemocyanin.

COMMON TRAPS

- **Treating all Arthropoda clues as automatically Insecta.** Haemocyanin is classically found in molluscs and some arthropods, especially crustaceans and arachnids; most insects respire through tracheae and do not depend on respiratory pigments. *Avoid it:* Before selecting an arthropod sub-group, ask whether the subgroup named is the standard example for that pigment.
- **Confusing Annelida with haemocyanin due to invertebrate status.** Annelids usually have haemoglobin or other pigments, not haemocyanin as the standard NEET association. *Avoid it:* Pair each phylum with its typical pigment: annelids → haemoglobin/chlorocruorin/haemerythrin; molluscs/selected arthropods → haemocyanin.

REVISE Respiratory pigments by organism group, not by habitat. · Memorize the distinction: haemocyanin = copper-containing; haemoglobin = iron-containing.

295 **Answer: B** Ref 248

Medium ~1 min Modes of nutrition in bacteria

Photolithotrophs are organisms that use light as their energy source. The term can be broken as: photo means light, litho means inorganic electron or hydrogen donor, and troph means nutrition. Therefore, photolithotrophs obtain energy from radiations and obtain hydrogen or electrons from inorganic compounds. Hence, option B is correct.

296 **Answer: A** Ref 261

Easy ~0.5 min Bacterial cell wall and Gram staining

The difference between Gram-positive and Gram-negative bacteria is mainly due to the structure and composition of their cell wall. Gram-positive bacteria have a thick peptidoglycan layer, so they retain the crystal violet stain and appear purple. Gram-negative bacteria have a thin peptidoglycan layer and an outer membrane, so they do not retain crystal violet after decolorization and take up the counterstain, appearing pink or red. Therefore, the correct answer is Cell wall.

297 **Answer: C** Ref 268

Easy ~0.5 min Viruses and genetic material

Cauliflower mosaic virus is a plant virus belonging to the group of pararetroviruses. Its genetic material is double-stranded DNA, not RNA. Hence, the correct answer is ds DNA.

298 **Answer: D** Ref 285

Easy ~0.5 min Archaebacteria

Archaebacteria are considered among the oldest living organisms on Earth. They are primitive prokaryotes and can survive in extreme environments such as high salt, high temperature, and anaerobic conditions. Halophiles are a type of archaebacteria, but all archaebacteria are not halophiles. They are not all photosynthetic, and they are living organisms, not fossils. Therefore, the correct statement is that archaebacteria are the oldest living beings.

299 **Answer: A** Ref 293

Easy ~0.5 min Gymnosperms - Cycas

Cycas is a gymnosperm. Even though Cycas may show two cotyledons, it is not placed under angiosperms because its ovules are naked, meaning they are not enclosed inside an ovary. In angiosperms, ovules are enclosed within the ovary and later develop into seeds inside fruits. Circinate ptyxis and compound leaves are features seen in Cycas, but they do not decide its exclusion from angiosperms. Therefore, the correct reason is naked ovules.

COMMON TRAPS

- **Treating "two cotyledons" as sufficient proof of angiosperm dicot status.** The decisive character in this question is not cotyledon number but ovule enclosure. The explanation states: "it is not placed under angiosperms because its ovules are naked" and "In angiosperms, ovules are enclosed within the ovary". Cycas is a gymnosperm despite having two cotyledons. *Avoid it:* When a question contrasts gymnosperms and angiosperms, first check whether the option mentions ovules/seeds being naked or enclosed, before using cotyledon number.
- **Misreading option A "Naked ovules" as naked seeds only after fertilization.** The explanation explicitly defines "Naked ovules" as "not enclosed inside an ovary". In angiosperms, ovules are enclosed within the ovary; in Cycas, they are exposed on megasporophylls. Thus option A is the taxonomic reason. *Avoid it:* Translate "naked ovules" into the check phrase: "ovule not inside ovary". If that matches gymnosperms, select it even if you remember the phrase naked seeds.

REVISE Gymnosperm vs angiosperm using reproductive criteria first: naked ovules/seeds versus ovules enclosed in ovary and seeds in fruit. · Practice eliminating options that are true statements but do not answer the word "because" in the stem.

300 **Answer: A** Ref 294

Easy ~0.5 min Decomposers in Five Kingdom Classification

Decomposers are organisms that break down dead organic matter and recycle nutrients in the ecosystem. The main decomposers include bacteria, which belong to kingdom Monera, and fungi. Plants are producers, animals are consumers, and protists are not considered the chief decomposer group in this context. Therefore, the correct answer is Monera and fungi.

301 **Answer: A** Ref 295

Easy ~0.5 min Cyanobacteria

Cyanobacteria are oxygenic photosynthetic prokaryotes, meaning they release O_2 during photosynthesis. Many cyanobacteria can also fix atmospheric nitrogen using the enzyme nitrogenase, especially in specialized cells called heterocysts. Therefore, the correct statement is: oxygenic with nitrogenase.

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COMMON TRAPS

- **Treating cyanobacteria as non-oxygenic bacteria.** Cyanobacteria are photosynthetic prokaryotes that split water and release oxygen, so they are oxygenic. *Avoid it:* When the organism is cyanobacteria/blue-green algae, mark oxygenic first, then evaluate nitrogen fixation.
- **Assuming oxygenic photosynthesis excludes nitrogenase.** Many cyanobacteria have nitrogenase, especially in heterocysts that protect nitrogenase from oxygen. *Avoid it:* Remember: cyanobacteria = oxygenic photosynthesis; many = nitrogen fixing via heterocysts.

REVISE NCERT Biological Classification section on cyanobacteria/blue-green algae. · Compare cyanobacteria with purple and green sulphur bacteria for oxygen release and electron donor.

302 **Answer: A** Ref 298

Easy | ~0.5 min | Taxonomic Categories

In the taxonomic hierarchy, categories become less general and more specific as we move downward. The order is: Division/Phylum → Class → Order → Family → Genus → Species. Species is below genus, so it is less general and has more specific characters than genus. Therefore, the correct answer is Species.

COMMON TRAPS

- **Reversing the meaning of "less general".** In taxonomy, moving downward from Division/Phylum → Class → Order → Family → Genus → Species means categories become less general and more specific. *Avoid it:* Locate "genus" in the hierarchy and move one step downward to find the less general category: Species.
- **Confusing "as compared to genus" with "contains genus".** A family is above genus, so it is more general, not less general. Species is below genus, so it is less general. *Avoid it:* For any option, ask: is it above or below genus? Above = more general; below = less general.

REVISE The broad-to-specific hierarchy: Division/Phylum → Class → Order → Family → Genus → Species. · Practice converting wording: 'less general' = lower/more specific; 'more general' = higher/broader.

303 **Answer: A** Ref 299

Medium | ~0.5 min | Fungi - Host Penetration by Appressorium

The adhesive pad of many parasitic fungi is called an appressorium. It helps the fungus attach firmly to the host surface and then penetrate the host tissue. Penetration occurs by a combined action: mechanical pressure exerted by the penetration peg and enzymatic digestion or softening of the host cell wall. Therefore, both mechanical pressure and enzymes are involved.

304 **Answer: A** Ref 301

Easy | ~0.5 min | Pteridophytes and nitrogen-fixing symbiosis

Azolla is an aquatic fern that performs nitrogen fixation due to its symbiotic association with the cyanobacterium Anabaena azollae. This association is especially important in paddy fields, where Azolla acts as a biofertilizer. Nostoc is itself a cyanobacterium, not an aquatic fern. Salvia is not an aquatic fern, and Salvinia is an aquatic fern but is not known for nitrogen fixation like Azolla.

305 **Answer: C** Ref 321

Medium | ~0.5 min | Regeneration

Morphallaxis is a type of regeneration in which existing tissues are reorganized or remodeled, leading to modification of one part or organ into another form. Epimorphosis involves formation of a blastema and growth of the lost part, while accretionary growth means growth by addition of new material. Hence, the correct answer is Morphallaxis.

306 **Answer: C** Ref 20

Easy | ~0.5 min | Viruses and metabolic machinery

QUICK APPROACH Recall the nature of viruses as acellular entities and how it affects their possession of metabolic enzymes compared to cellular organisms like fungi and algae.

Viruses are acellular, obligate intracellular parasites and do not possess their own complete metabolic machinery. Hence, they generally lack enzymes required for independent metabolism. Fungi, algae and cyanobacteria are cellular organisms and contain enzymes for their metabolic activities.

307 **Answer: A** Ref 22

Easy | ~0.5 min | Viruses

QUICK APPROACH Recall the definition of living organisms and focus on the characteristic unique to viruses that is tied to their replication inside host cells.

Viruses are considered living only when they are inside a host cell because they can use the host machinery to multiply and produce new virus particles. Outside the host cell, viruses are inert, non-cellular particles and do not show independent metabolism, respiration, or growth. They do not carry out anaerobic respiration or independent metabolic activity. Causing infection is a property of viruses, but it is not the main criterion for considering them living.

COMMON TRAPS

- **Treating infection-causing ability as the criterion for being living.** The explanation states, "Causing infection is a property of viruses, but it is not the main criterion for considering them living." Viruses are considered living only when they can reproduce using host machinery. *Avoid it:* Before selecting an option, ask whether the option describes a life process used as a criterion of life, not merely a disease outcome.
- **Assuming viruses have independent metabolism.** The explanation says viruses "do not show independent metabolism" and "They do not carry out ... independent metabolic activity." *Avoid it:* Whenever an option says metabolic activity for viruses, check whether it says independent metabolism. For viruses, independent metabolism is absent.

REVISE The NCERT distinction: viruses are inert outside host cells but show living properties inside host cells. · Memorize that viruses lack independent metabolism and respiration.

308 **Answer: A** Ref 34

Easy | ~0.5 min | Mammalia characteristics

Platypus is a monotreme mammal and lays eggs, so it is oviparous. Bats are mammals and have hair, not feathers. Elephant is a viviparous mammal, not ovoviviparous. A muscular diaphragm is present in mammals and helps in respiration. Therefore, the correct statement is: Platypus is oviparous.

309 **Answer: A** Ref 36

Easy | ~0.5 min | General characters of Chordata

Chordates are characterized by the presence of a dorsal hollow nerve cord, pharyngeal gill slits, notochord, and post-anal tail at least during some stage of life. They are also coelomate animals. Diaphragm is not a universal chordate

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character; it is mainly found in mammals. Therefore, the character not found in all chordates is diaphragm.

310 **Answer: C** Ref 58

Easy ~0.5 min Mammalian glands

Anal glands in mammals produce strong-smelling or odorous secretions. These secretions are commonly used for territorial marking, identification, and defense in many mammals. Bartholin glands secrete mucus, the prostate contributes to seminal fluid, and the liver secretes bile, so these are not the correct choices.

311 **Answer: A** Ref 81

Medium ~0.5 min Gymnosperms

Gymnosperms include some record-holding plants. Cycas has the largest ovule and very large motile male gametes, while Sequoia is among the largest/tallest trees. Therefore, the plant group associated with largest ovule, largest tree, and largest gametes is Gymnosperms.

312 **Answer: A** Ref 82

Easy ~0.5 min

Pteridophytes - Life Cycle and Alternation of Generations

In ferns, the main plant body is the diploid sporophyte. Inside sporangia, diploid spore mother cells undergo meiosis to produce haploid spores. These spores later germinate to form the gametophyte. Gametes in ferns are formed by mitosis on the haploid gametophyte, not by meiosis. Therefore, meiosis occurs during spore formation.

COMMON TRAPS

- **Equating meiosis with gamete formation in all plants.** In ferns, meiosis occurs in diploid spore mother cells to produce haploid spores; gametes are produced mitotically by the haploid gametophyte. *Avoid it:* Before choosing a process, ask whether the structure producing it is diploid or haploid. If the parent is already haploid, meiosis cannot be the normal reduction step.
- **Confusing spore formation with spore germination.** Meiosis produces spores during spore formation; spore germination is later mitotic growth of haploid spore into haploid gametophyte. *Avoid it:* Mark the order: sporangium → meiosis → spores → germination → gametophyte. Meiosis comes before germination, not during it.

REVISE Fern life cycle with ploidy labels and locations: sporangia, spores, prothallus/gametophyte, antheridia, archegonia, gametes. · Practice differentiating formation vs germination: formation produces a structure; germination is growth of an already formed spore/seed.

313 **Answer: A** Ref 84

Medium ~0.5 min

Comparative features of Aschelminthes and Arthropoda

Both Ascaris lumbricoides and Anopheles stephensi show sexual dimorphism, meaning males and females differ in external morphology. In Ascaris, the male is smaller and has a curved posterior end, while the female is larger and straight. In Anopheles, males and females differ in antennae, mouthparts, and feeding habits. Metamerism is not present in Ascaris because it is an unsegmented roundworm. Anaerobic respiration is characteristic of Ascaris due to its endoparasitic habitat, but not Anopheles. Endoparasitism is shown by Ascaris, whereas Anopheles is not an endoparasite.

314 **Answer: A** Ref 107

Easy ~0.5 min Fungi and Plant Diseases

Black rust of wheat is caused by the fungus Puccinia, specifically Puccinia graminis tritici. Ustilago causes smut diseases, Albugo causes white rust, and Phytophthora causes diseases like late blight of potato.

COMMON TRAPS

- **Confusing black rust with smut due to cereal crop association.** "Black rust of wheat" is caused by Puccinia, specifically Puccinia graminis tritici; Ustilago causes smut diseases. *Avoid it:* Tie the disease name keyword "rust" to Puccinia, not just the host crop wheat.
- **Confusing black rust with white rust.** Albugo causes white rust, whereas black rust of wheat is caused by Puccinia. *Avoid it:* Always read the color qualifier before "rust": black rust → Puccinia; white rust → Albugo.

REVISE NCERT plant disease examples as disease-host-pathogen triples. · Use color qualifiers carefully: black rust versus white rust.

315 **Answer: A** Ref 108

Easy ~0.5 min Embryonic Development - Gastrulation

During gastrulation, the archenteron or primitive gut is formed. The opening of the archenteron to the outside is called the blastopore. Blastocoel is the cavity of the blastula, coelom is the body cavity, and A.C. likely refers to alimentary canal, which is not the specific embryological structure asked here. Therefore, blastopore is the pore of the archenteron.

316 **Answer: B** Ref 109

Easy ~0.5 min Levels of Organisation

Hydra belongs to phylum Cnidaria. Cnidarians show tissue level or cell–tissue grade organisation, where cells are arranged into tissues but true organs are absent. Sponge shows cellular level organisation, Liver fluke shows organ level organisation, and Ascaris shows organ-system level organisation. Therefore, the correct answer is Hydra.

COMMON TRAPS

- **Equating 'scattered cells' with sponges only.** Sponges have cellular level organisation, not cell–tissue/tissue grade. Hydra/Cnidaria has tissue level or cell–tissue grade organisation. *Avoid it:* Read the full qualifier after the noun: not just "scattered cells" but "scattered cells with cell–tissue grade organisation".
- **Treating 'cell–tissue grade' as the same as 'cellular level'.** Cell–tissue/tissue grade means cells are organized into tissues but organs are absent; cellular level means cells are present without true tissues. *Avoid it:* When a level contains the word "tissue", check for true tissues; Porifera lacks true tissues, while Cnidaria has them.

REVISE The NCERT table of levels of organisation phylum-wise. · Practice identifying both the animal and its phylum before choosing the level of organisation.

317 **Answer: B** Ref 112

Easy ~0.5 min Algae classification based on pigments

Rhodophyta, commonly called red algae, contain chlorophyll a, chlorophyll d and phycobilin pigments, especially phycoerythrin. Phycoerythrin gives them their characteristic red colour and helps them absorb light in deeper waters. Phaeophyta mainly contain chlorophyll a, chlorophyll c and fucoxanthin. Chlorophyta mainly contain chlorophyll a and chlorophyll b. Bacillariophyta, or diatoms, contain chlorophyll a, chlorophyll c and fucoxanthin. Therefore, the alga belongs to Rhodophyta.

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COMMON TRAPS

- **Confusing chlorophyll d with chlorophyll c and choosing brown algae/diatoms.** Rhodophyta contain chlorophyll a and chlorophyll d along with phycobilins, especially phycoerythrin. Phaeophyta and Bacillariophyta contain chlorophyll a and chlorophyll c with fucoxanthin, not chlorophyll d + phycoerythrin. *Avoid it:* Underline the exact chlorophyll letter in the question: "d" is a red-algae cue; "c + fucoxanthin" is brown algae/diatom cue.
- **Treating phycoerythrin as a general accessory pigment instead of the key Rhodophyta marker.** The diagnostic word is "phycoerythrin"; it is the red phycobilin pigment characteristic of Rhodophyta. Chlorophyta mainly contain chlorophyll a and chlorophyll b, not phycoerythrin as the defining pigment. *Avoid it:* When a pigment list has one common pigment and one rare/diagnostic pigment, match using the rare one first. Here use "phycoerythrin" before "chlorophyll a".

REVISE Algal divisions using exact pigment combinations, not just colour names. · Memorize: Chlorophyta = chlorophyll a,b; Phaeophyta = chlorophyll a,c + fucoxanthin; Rhodophyta = chlorophyll a,d + phycoerythrin; Bacillariophyta = chlorophyll a,c + fucoxanthin.

318 **Answer: C** Ref 120

Easy ~0.5 min Kingdom Fungi

Fungi store reserve food mainly in the form of glycogen and oil droplets. Starch is the stored food of many plants, while chitin is a structural polysaccharide present in the fungal cell wall, not the stored food. Therefore, the correct answer is Glycogen.

COMMON TRAPS

- **Confusing fungal reserve food with plant reserve food.** In fungi, reserve food is mainly "glycogen and oil droplets"; starch is associated with many plants, not fungi. *Avoid it:* Before selecting a storage product, identify the kingdom named in the stem. If it says "fungi", recall animal-like storage: glycogen, not starch.
- **Mistaking chitin in fungal cell wall for stored food.** Chitin is a structural polysaccharide of the fungal cell wall; it is "not the stored food". *Avoid it:* For every biomolecule option, ask: Is it reserve food or structural material? In fungi, chitin = wall, glycogen = reserve.

REVISE Kingdom Fungi using function-based pairs: reserve food → glycogen/oil droplets; cell wall → chitin; mode of nutrition → absorptive heterotrophic. · Create a comparison table of storage materials across groups: plants/algae, fungi, animals, bacteria.

319 **Answer: B** Ref 121

Easy ~0.5 min Continuity of life and genetic material

Living beings maintain continuity of life through reproduction. During reproduction, DNA replicates and genetic information is transferred from one generation to the next. This ensures that hereditary characters are passed on and life continues. Adaptation helps organisms survive in changing environments, and RNA synthesis is involved in gene expression, but neither is the primary basis for continuity of life across generations.

COMMON TRAPS

- **Treating adaptation as continuity of life.** Continuity of life means hereditary information is copied and passed to offspring during reproduction, not merely survival of an individual organism. *Avoid it:* When the question says "continuity of life", immediately ask whether it refers to individual survival or transfer of genetic material across generations.
- **Ignoring the next generation cue in option B.** The key event for continuity across generations is DNA replication followed by transfer of genetic information to offspring. *Avoid it:* Underline phrases indicating generation transfer, such as "next generation", "hereditary characters", and "offspring".

REVISE The distinction between adaptation, reproduction, heredity, DNA replication, and RNA synthesis. · In one-mark biology questions, identify the keyword that sets the context: here, "continuity of life" and "next generation".

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