

Animal Kingdom — NEET Biology PYQ (2005-2021)

Class 11 Biology · 67 real NEET & AIPMT questions, year-tagged · answers checked by RankUp

NEET 2021

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

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

NEET 2021

2. 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.

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

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3. 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.

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

NEET 2021

4. 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) (c), (d) and (e) are correct
- (B) (a), (b) and (c) are correct
- (C) (a), (d) and (e) are correct
- (D) (b), (c) and (e) are correct

5. 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) Ctenoplane

(d) Bioluminescence | (iv) Locusta

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

(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

6. 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)

7. 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

8. Bilaterally symmetrical and acoelomate animals are exemplified by:

(A) Ctenophora

(B) Platyhelminthes

(C) Aschelminthes

(D) Annelida

9. 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, Arthropoda and Chordata

(B) Annelida, Arthropoda and Mollusca

(C) Arthropoda, Mollusca and Chordata

(D) Annelida, Mollusca and Chordata

NEET 2019 · Q157

10. 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 :

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

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

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

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

NEET 2018 · Q148

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

(A) Aves

(B) Reptilia

(C) Amphibia

(D) Osteichthyes

NEET 2018 · Q150

12. Which one of these animals is not a homeotherm?

(A) Camelus

(B) Chelone

(C) Macropus

(D) Psittacula

NEET 2018 · Q151

13. Which of the following animals does not undergo metamorphosis?

(A) Moth

(B) Tunicate

(C) Earthworm

(D) Starfish

NEET 2017 · Q50

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

(A) ostia

(B) oscula

(C) choanocytes

(D) mesenchymal cells

NEET 2017 · Q59

15. An important characteristic that Hemichordates share with Chordates is:

(A) absence of notochord

(B) ventral tubular nerve cord

(C) pharynx with gill slits

(D) pharynx without gill slits

NEET 2017 · Q69

16. Which among these is the correct combination of aquatic mammals?

(A) Seals, Dolphins, Sharks

(B) Dolphins, Seals, Trygon

(C) Whales, Dolphins, Seals

(D) Trygon, Whales, Seals

NEET 2017 (Gujarati paper) · Q102

17. Which of the following represents correct match of feature with the given set of animals?

Feature - Animals

- (A) Respiratory system – Cockroach, Tapeworm, Starfish
- (B) Bilateral symmetry – Hydra, Tapeworm, Sea urchin
- (C) Jointed appendages – Prawn, Centipede, Grasshopper
- (D) Metameric segmentation – Earthworm, Leech, Liver fluke

NEET 2017 (Gujarati paper) · Q129

18. Choose the false statement regarding Petromyzon.

- (A) The body is devoid of scales
- (B) Mouth is circular and lacks jaws
- (C) It migrates to the ocean for spawning
- (D) The circulatory system is closed

NEET 2017 (Gujarati paper) · Q130

19. Which of the following symmetry is exhibited by Echinoderm Larvae?

- (A) Radial
- (B) Asymmetrical
- (C) Biradial
- (D) Bilateral

NEET 2016 Phase 2 · Q138

20. Choose the correct statement.

- (A) All mammals are viviparous.
- (B) All cyclostomes do not possess jaws and paired fins.
- (C) All reptiles have a three-chambered heart.
- (D) All Pisces have gills covered by an operculum.

NEET 2016 Phase 1 · Q95

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

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

NEET 2016 Phase 1 · Q124

22. 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

NEET 2016 Phase 1 · Q145

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

- (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

NEET 2016 Phase 1 · Q159

24. 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

AIPMT 2015

25. Which of the following represents the correct combination without any exception? (Characteristics - Class)

- (A) Body covered with feathers; skin moist and glandular; fore-limbs form wings; lungs with air sacs - Aves
- (B) Mammary gland; hair on body; pinnae; two pairs of limbs - Mammalia
- (C) Mouth ventral; gills without operculum; skin with placoid scales; persistent notochord - Chondrichthyes
- (D) Sucking and circular mouth; jaws absent, integument without scales; paired appendages - Cyclostomata

AIPMT 2015

26. Which of the following characteristics is mainly responsible for diversification of insects on land?

- (A) Eyes
- (B) Segmentation
- (C) Bilateral symmetry
- (D) Exoskeleton

AIPMT 2015

27. Which of the following animals is not viviparous?

- (A) Whale
- (B) Flying fox (Bat)
- (C) Elephant
- (D) Platypus

AIPMT 2015

28. Which of the following endoparasites of humans does show viviparity?

- (A) *Ascaris lumbricoides*
- (B) *Ancylostoma duodenale*
- (C) *Enterobius vermicularis*
- (D) *Trichinella spiralis*

AIPMT 2014

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

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

AIPMT 2014

30. Select the Taxon mentioned that represents both marine and fresh water species:

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

AIPMT 2014

31. Planaria possess high capacity of:

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

AIPMT 2014

32. A marine cartilaginous fish that can produce electric current is:

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

NEET 2013

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

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

NEET 2013

34. Which group of animals belong to the same phylum?

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

NEET 2013

35. One of the representatives of Phylum Arthropoda is

- (A) cuttlefish
- (B) silverfish
- (C) pufferfish
- (D) flying fish

AIPMT 2012 Mains

36. Which one of the following pairs of animals are similar to each other pertaining to the feature stated against them?

- (A) Pteropus and Ornithorhynchus – Viviparity
- (B) Garden lizard and Crocodile – Three chambered heart
- (C) Ascaris and Ancylostoma – Metameric segmentation
- (D) Sea horse and Flying fish – Cold blooded (poikilothermal)

AIPMT 2012 Mains

37. Which one of the following categories of animals is correctly described with no single exception in it?

- (A) All reptiles possess scales, have a three chambered heart and are cold blooded (poikilothermal)
- (B) All bony fishes have four pairs of gills and an operculum on each side
- (C) All sponges are marine and have collared cells
- (D) All mammals are viviparous and possess diaphragm for breathing

AIPMT 2012 Prelims

38. 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) Periplaneta – (a) jointed appendages, (b) chitinous exoskeleton – Arthropoda
- (B) Pila – (a) body segmented, (b) mouth with radula – Mollusca
- (C) Asterias – (a) spiny skinned, (b) water vascular system – Echinodermata
- (D) Sycon – (a) pore bearing, (b) canal system – Porifera

39. Which one of the following statements is totally wrong about the occurrence of notochord while the other three are correct

- (A) It is absent throughout life in humans from the very beginning
- (B) It is present throughout life in Amphioxus
- (C) It is present only in larval tail in Ascidians
- (D) It is replaced by a vertebral column in adult frog

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

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

41. What will you look for to identify the sex of the following?

- (A) Male shark - Claspers borne on pelvic fins
- (B) Female Ascaris - Sharply curved posterior end
- (C) Male frog - A copulatory pad on the first digit of the hind limb
- (D) Female cockroach - Anal cerci

42. Crocodile and penguin are similar to Whale and Dogfish in which one of the following features?

- (A) Possess a solid single stranded central nervous system
- (B) Lay eggs and guard them till they hatch
- (C) Possess bony skeleton.
- (D) Have gill slits at some stage

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

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

44. Which one of the following statements about all the four of Spongilla, Leech, Dolphin and Penguin is correct ?

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

45. Which one of the following kinds of animals are triploblastic?

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

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

- (A) Flat worms (Platyhelminthes) are coelomates
- (B) Round worms (Aschelminthes) are pseudocoelomates
- (C) Molluscs are acoelomates
- (D) Insects are pseudocoelomates

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

- (A) Aschelminthes (round worms)
- (B) Ctenophores
- (C) Sponges
- (D) Coelenterates (Cnidarians)

48. Peripatus is a connecting link between:

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

49. Which one of the following pairs of animals comprises jawless fishes?

- (A) Mackerals and Rohu
- (B) Lampreys and hag fishes
- (C) Guppies and hag fishes
- (D) Lampreys and eels

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

Animals - Morphological feature

- (A) Cockroach, Locust, Taenia - Metameric segmentation
- (B) Liver fluke, Sea anemone, Sea cucumber - Bilateral symmetry
- (C) Centipede, Prawn, Sea urchin - Jointed appendages
- (D) Scorpion, Spider, Cockroach - Ventral solid central nervous system

51. Which one of the following phyla is correctly matched with its two general characteristics?

- (A) Mollusca - Normally oviparous and development through a trochophore or veliger larva
- (B) Arthropoda - Body divided into head, thorax and abdomen and respiration by tracheae
- (C) Chordata - Notochord at some stage and separate anal and urinary openings to the outside
- (D) Echinodermata - Pentamerous radial symmetry and mostly internal fertilization

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

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

53. Ascaris is characterized by

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

AIPMT 2008 Prelims · Q109

54. Which one of the following is not a characteristic of phylum Annelida?

- (A) Ventral nerve cord
- (B) Closed circulatory system
- (C) Segmentation
- (D) Pseudocoelom

AIPMT 2007 Prelims · Q114

55. What is true about Nereis, scorpion, cockroach and silver fish?

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

AIPMT 2007 Prelims · Q140

56. What is common between parrot, platypus and kangaroo?

- (A) toothless jaws
- (B) functional post-anal tail
- (C) oviparity
- (D) homoiothermy

AIPMT 2007 Prelims · Q145

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

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

AIPMT 2007 Prelims · Q150

58. Which one of the following pairs is mismatched?

- (A) Apis indica - honey
- (B) Kerria lacca - lac
- (C) Bombyx mori - silk
- (D) Pila globosa - pearl

AIPMT 2006 Prelims · Q151

59. 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, Terebratulid, Octopus
- (D) Porifera — Spongilla, Euplectella, Pennatulid

AIPMT 2006 Prelims · Q152

60. Metameric segmentation is the characteristic of :

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

AIPMT 2006 Prelims · Q184

61. Which one of the following has an open circulatory system ?

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

62. Biradial symmetry and lack of cnidoblasts are the characteristics of :

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

63. In which one of the following sets of animals do all the four give birth to young ones ?

- (A) Lion, bat, whale, ostrich
- (B) Platypus, penguin, bat, hippopotamus
- (C) Shrew, bat, cat, kiwi
- (D) Kangaroo, hedgehog, dolphin, loris

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

- (A) compound eyes and anal cerci
- (B) jointed legs and chitinous exoskeleton
- (C) green gland and tracheae
- (D) book lungs and antennae

65. From the following statements select the wrong one :

- (A) millepedes 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

66. 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

67. In contrast to annelids the platyhelminths show :

- (A) radial symmetry
- (B) presence of pseudocoel
- (C) bilateral symmetry
- (D) absence of body cavity

Answer key and explanations

1. Answer: (A) Neophron

Hollow, air-filled (pneumatic) long bones are a feature of birds, and Neophron is a bird (vulture). Hemidactylus is a lizard, while Macropus (kangaroo) and Ornithorhynchus (platypus) are mammals with solid bones.

2. Answer: (C) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

Metamerism is typical of Annelida, the canal system of Porifera, comb plates of Ctenophora, and cnidoblasts of Coelenterata. Hence (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i).

3. Answer: (C) (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)

Physalia is the Portuguese man of war, Limulus (king crab) is a living fossil, Ancylostoma is the hookworm, and Pinctada is the pearl oyster. Hence (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i).

4. Answer: (D) (b), (c) and (e) are correct

Echinoderms are triploblastic coelomates, roundworms have organ-system level organisation, and the water vascular system is characteristic of echinoderms, so (b), (c) and (e) are correct. Metagenesis occurs in cnidarians, not helminths, and comb plates of ctenophores help in locomotion, not digestion.

5. Answer: (B) (a)-iv, (b)-i, (c)-ii, (d)-iii

Locusta is the gregarious, polyphagous pest; Asterias (an echinoderm) has radially symmetrical adults but bilaterally symmetrical larvae; scorpions breathe by book lungs; and the ctenophore Ctenoplanea is bioluminescent. Hence Locusta, Asterias, Scorpion, Ctenoplanea is the correct order.

6. Answer: (D) (b) and (c)

In vertebrates the notochord is present only in the embryo and is replaced by the vertebral column, and all chordates have a dorsal, hollow nerve cord, so those two statements are true. In urochordates the notochord is only in the larval tail, and the three subphyla are Urochordata, Cephalochordata and Vertebrata, since Hemichordata is now a separate phylum.

7. Answer: (A) (a)-ii, (b)-iii, (c)-iv, (d)-i

Cyclostomes have 6-15 pairs of gill slits, Chondrichthyes have a heterocercal caudal fin, Osteichthyes have an air bladder, and Trygon (sting ray) has a poison sting. Hence Cyclostomes, Chondrichthyes, Osteichthyes, Trygon is correct.

8. Answer: (B) Platyhelminthes

Flatworms (Platyhelminthes) are bilaterally symmetrical and acoelomate. Ctenophores are radially symmetrical, Aschelminthes are pseudocoelomate, and annelids are true coelomates.

9. Answer: (A) Annelida, Arthropoda and Chordata

Annelids, arthropods and chordates are all bilateral, organ-system level, true coelomates with metameric segmentation. Molluscs are coelomate but unsegmented, so any group including Mollusca fails.

10. Answer: (B) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

Pila, a mollusc, has a rasping radula; Bombyx, an insect, excretes by Malpighian tubules; Pleurobrachia, a ctenophore, swims with comb plates; and Taenia, a flatworm, has flame cells. Giving comb plates to the silkworm is the main mix-up.

11. Answer: (A) Aves

Birds have a crop to store food and a muscular gizzard to grind it, since they have no teeth; NCERT lists these as additional chambers of the bird digestive tract. Reptiles, amphibians and bony fishes do not have this crop-and-gizzard arrangement.

12. Answer: (B) Chelone

Chelone is a turtle, a reptile, so it is poikilothermic (cold-blooded). Camelus (camel) and Macropus (kangaroo) are mammals and Psittacula (parrot) is a bird, all of which are homeotherms.

13. Answer: (C) Earthworm

Earthworm shows direct development: young worms hatch from cocoons with no larval stage, so there is no metamorphosis. Moths pass through caterpillar and pupa, tunicates have a tadpole larva that undergoes retrogressive metamorphosis, and starfish have a bilateral larva that becomes the radial adult.

14. Answer: (C) choanocytes

The spongocoel and canals of sponges are lined by flagellated collar cells called choanocytes, which drive the water current. Ostia are the pores through which water enters and the osculum is the opening through which it leaves; they are openings, not cells.

15. Answer: (C) pharynx with gill slits

Hemichordates have pharyngeal gill slits, one of the basic chordate features. Chordates have a notochord and a dorsal (not ventral) hollow nerve cord, so the absence of a notochord and a ventral nerve cord are not shared features.

16. Answer: (C) Whales, Dolphins, Seals

Whales, dolphins and seals are all aquatic mammals. Sharks and Trygon (sting ray) are cartilaginous fishes, so any group containing them is wrong.

17. Answer: (C) Jointed appendages - Prawn, Centipede, Grasshopper

Prawn, centipede and grasshopper are all arthropods with jointed appendages. Tapeworm has no respiratory system, Hydra is radially symmetrical and adult sea urchin is radial, and the liver fluke is a flatworm without metameric segmentation.

18. Answer: (C) It migrates to the ocean for spawning

Petromyzon (lamprey) is marine but migrates to fresh water for spawning; the adults die soon after and the larvae return to the ocean after metamorphosis, so migrating to the ocean to spawn is false. Cyclostomes are scaleless, have a circular jawless sucking mouth and a closed circulatory system, so the statement about closed circulation is true.

19. Answer: (D) Bilateral

Echinoderm larvae are bilaterally symmetrical, while the adults become radially symmetrical. Radial symmetry describes the adult, not the larva.

20. Answer: (B) All cyclostomes do not possess jaws and paired fins.

Cyclostomes such as lampreys and hagfishes are jawless and lack paired fins. Egg-laying mammals like the platypus are not viviparous, crocodiles have a four-chambered heart, and cartilaginous fishes have gill slits without an operculum.

21. Answer: (C) Parapodia

Parapodia are lateral locomotory appendages of aquatic annelids such as Nereis, not of arthropods. Arthropods have a chitinous exoskeleton, segmented bodies and jointed appendages.

22. Answer: (B) Indeterminate and radial cleavage during embryonic development

Cockroach is a protostome arthropod: its embryos show determinate cleavage, and its coelom is schizocoelic in origin. Indeterminate radial cleavage is a deuterostome feature (echinoderms, chordates). Its exoskeleton is chitin, a polymer of N-acetylglucosamine, and the body is segmented.

23. Answer: (A) Cartilaginous endoskeleton - Chondrichthyes

All Chondrichthyes (sharks, rays) have a cartilaginous endoskeleton. Not all mammals are viviparous (monotremes lay eggs), jawless chordates such as cyclostomes lack jaws, and crocodiles have a four-chambered heart.

24. Answer: (C) Viviparity

Birds are oviparous (lay eggs) while most mammals are viviparous, so viviparity is not shared. Both groups have bony skeletons, breathe with lungs and are warm-blooded (homeothermic).

25. Answer: (C) Mouth ventral; gills without operculum; skin with placoid scales; persistent notochord - Chondrichthyes

NCERT describes Chondrichthyes as having a ventral mouth, gill slits without an operculum, skin with minute placoid scales and a notochord that persists throughout life, so this set holds for all members. The mammal set has exceptions: whales lack external pinnae and hind limbs. Birds have dry skin without glands, and cyclostomes lack paired appendages.

26. Answer: (D) Exoskeleton

The chitinous exoskeleton prevents water loss and protects the body, which let insects colonise dry land in great variety. Segmentation and bilateral symmetry are shared with many aquatic animals and do not solve the problem of drying out.

27. Answer: (D) Platypus

The platypus is a monotreme mammal that lays eggs, so it is oviparous. Whale, bat (flying fox) and elephant give birth to live young.

28. Answer: (D) Trichinella spiralis

Trichinella spiralis is viviparous: the female releases live larvae that migrate to and encyst in muscle. Ascaris, Ancylostoma and Enterobius lay eggs.

29. Answer: (A) Sea-fan (Gorgonia)

Gorgonia (sea-fan) is a cnidarian, an animal, so its cells have no cell wall. Saccharomyces (yeast) has a chitinous/glucan wall, and blue-green algae (cyanobacteria) have a peptidoglycan cell wall.

30. Answer: (C) Cnidaria

Cnidaria are mostly marine but include freshwater forms such as Hydra, so the phylum has both marine and freshwater species. Ctenophores, cephalochordates (Amphioxus) and echinoderms are exclusively marine.

31. Answer: (A) regeneration

Planaria, a flatworm, has a remarkably high capacity for regeneration: even small pieces can regrow a whole animal. It does not show alternation of generations, bioluminescence or metamorphosis.

32. Answer: (A) Torpedo

Torpedo, the electric ray, is a marine cartilaginous fish with electric organs that can produce shocks. Trygon (sting ray) has a poison sting, while Scoliodon (dogfish) and Pristis (saw fish) have no electric organs.

33. Answer: (C) House fly, butterfly, tsetse fly, silverfish - Insecta

House fly, butterfly, tsetse fly and silverfish all belong to class Insecta. Cuttlefish and silverfish are not fishes, centipedes, millipedes, spiders and scorpions are not insects, and the spiny anteater is a mammal, not an echinoderm.

34. Answer: (C) Prawn, Scorpion, Locusta

Prawn, scorpion and Locusta all have jointed appendages and a chitinous exoskeleton, placing them in phylum Arthropoda. The other groups mix phyla, e.g. earthworm is an annelid, pinworm a nematode and tapeworm a flatworm.

35. Answer: (B) silverfish

Silverfish (*Lepisma*) is a wingless insect and hence an arthropod. Cuttlefish is a mollusc, and pufferfish and flying fish are bony fishes.

36. Answer: (D) Sea horse and Flying fish - Cold blooded (poikilothermal)

The sea horse and the flying fish are both bony fishes and therefore cold-blooded (poikilothermous). *Ornithorhynchus* lays eggs, unlike the viviparous bat *Pteropus*; the crocodile has a four-chambered heart; and *Ascaris* and *Ancylostoma* are unsegmented roundworms.

37. Answer: (B) All bony fishes have four pairs of gills and an operculum on each side

Every bony fish has four pairs of gills covered by an operculum on each side. The other groups have exceptions: crocodiles have a four-chambered heart, some sponges (*Spongilla*) live in freshwater, and monotremes lay eggs.

38. Answer: (B) Pila - (a) body segmented, (b) mouth with radula - Mollusca

Pila (apple snail) is a mollusc with a radula, but its body is unsegmented, so the pair given for it is wrong. *Periplaneta* (jointed appendages, chitinous exoskeleton), *Asterias* (spiny skin, water vascular system) and *Sycon* (pores, canal system) are correctly matched.

39. Answer: (A) It is absent throughout life in humans from the very beginning

All chordates, humans included, have a notochord at some stage; in humans it forms in the embryo and is later replaced by the vertebral column, so saying it is absent from the very beginning is totally wrong. *Amphioxus* keeps it throughout life, ascidians have it only in the larval tail and in frogs it is replaced by the vertebral column.

40. Answer: (D) Chondrichthyes : possess cartilaginous endoskeleton

Every member of Chondrichthyes (sharks, rays) has a cartilaginous endoskeleton, with no exceptions. Not all mammals give birth (platypus lays eggs), crocodiles have a four-chambered heart, and jawless cyclostomes are chordates without jaws.

41. Answer: (A) Male shark - Claspers borne on pelvic fins

Male sharks bear claspers on their pelvic fins, used to transfer sperm. In *Ascaris* it is the male whose posterior end is sharply curved, the copulatory pad of male frogs is on the first digit of the fore limb, and anal cerci are present in both sexes of cockroach (anal styles are male-only).

42. Answer: (D) Have gill slits at some stage

All four are chordates, and every chordate has pharyngeal gill slits at some stage of its life, at least in the embryo. Chordates have a hollow dorsal nerve cord, not a solid one; the dogfish has a cartilaginous skeleton and the whale is viviparous, so the other features are not common to all.

43. Answer: (A) Fasciola

Platyhelminthes such as the liver fluke *Fasciola* have an incomplete digestive system, with one opening that works as both mouth and anus. Molluscs (*Octopus*), echinoderms (*Asterias*) and urochordates (*Ascidia*) have a complete gut with a separate mouth and anus.

44. Answer: (D) Spongilla has special collared cells called choanocytes, not found in the remaining three

Collar cells (choanocytes) lining the canal system are unique to sponges such as *Spongilla*. The homeothermy statement fails because the dolphin, a mammal, is also warm-blooded. *Spongilla* is a freshwater sponge and is asymmetrical, so the other two statements fail too.

45. Answer: (B) Flat worms

Triploblasty, with a mesoderm between ectoderm and endoderm, begins with the Platyhelminthes (flatworms). Corals (cnidarians) and ctenophores are diploblastic, and sponges have a cellular level of organisation without true germ layers.

46. Answer: (B) Round worms (Aschelminthes) are pseudocoelomates

Aschelminthes (roundworms) have a body cavity that is not lined by mesoderm all round (mesoderm occurs only as scattered pouches), so they are pseudocoelomates. Flatworms are acoelomate, while molluscs and arthropods such as insects are true coelomates.

47. Answer: (A) Aschelminthes (round worms)

Roundworms (Aschelminthes) are bilaterally symmetrical, triploblastic pseudocoelomates. Ctenophores and cnidarians are radially symmetrical and diploblastic, and sponges have no true tissue layers.

48. Answer: (B) Annelida and Arthropoda

Peripatus (Onychophora) has annelid features such as nephridia and a soft segmented body along with arthropod features such as tracheae, claws and a haemocoel, so it links Annelida and Arthropoda.

49. Answer: (B) Lampreys and hag fishes

Lampreys (Petromyzon) and hagfishes (Myxine) are cyclostomes, the jawless vertebrates (Agnatha). Eels, guppies, mackerel and rohu are bony fishes with jaws.

50. Answer: (D) Scorpion, Spider, Cockroach - Ventral solid central nervous system

Scorpion, spider and cockroach are all arthropods, and non-chordates like these have a ventral, solid nerve cord. Taenia is not metamerically segmented, sea anemone is radially symmetrical, and sea urchin (an echinoderm) has no jointed appendages, so the other groupings each contain a misfit.

51. Answer: (A) Mollusca - Normally oviparous and development through a trochophore or veliger larva

Molluscs are usually oviparous with indirect development, typically via trochophore and veliger larvae. Arthropods breathe by gills, book lungs or tracheae and are not all divided into head, thorax and abdomen; echinoderms have external fertilisation; and many chordates have a common cloacal opening.

52. Answer: (B) Scales on their hind limbs

NCERT notes that the hind limbs of birds generally bear scales, a retained reptilian character. A four-chambered heart is a feature birds share with mammals rather than with reptiles (which mostly have three chambers), so it does not indicate reptilian ancestry.

53. Answer: (C) Presence of neither true coelom nor metamerism

Ascaris is an aschelminth (roundworm): it is pseudocoelomate and its body is not segmented. True coelom together with metamerism is the annelid condition, not that of nematodes.

54. Answer: (D) Pseudocoelom

Annelids are true coelomates (schizocoelous); a pseudocoelom is the feature of Aschelminthes. Annelids do have a ventral nerve cord, closed circulation and metameric segmentation.

55. Answer: (A) they all possess dorsal heart

Nereis (an annelid) has a contractile dorsal blood vessel, and arthropods such as scorpion, cockroach and silverfish have a dorsal tubular heart, so all have a dorsal heart. Nereis is a marine annelid with unjointed parapodia, so 'none is aquatic', 'same phylum' and 'jointed appendages' all fail.

56. Answer: (D) homoiothermy

Birds and mammals are warm-blooded (homoiothermous), so the parrot, the platypus and the kangaroo all keep a constant body temperature. Kangaroos are viviparous and have teeth, so oviparity and toothless jaws do not fit all three.

57. Answer: (A) Ventral central nervous system - Leech

Leech is an annelid, and non-chordates such as annelids have a ventral, solid nerve cord. Chamaeleon, being a chordate, does have pharyngeal gill slits in the embryo, scorpion has a dorsal heart, and octopus has no post-anal tail.

58. Answer: (D) Pila globosa - pearl

Pila globosa is the apple snail and does not produce pearls; pearls come from the pearl oyster Pinctada. Apis gives honey, Kerria (Laccifer) lacca gives lac and Bombyx mori gives silk.

59. Answer: (C) Mollusca — Loligo, Teredo, Octopus

Loligo (squid), Teredo (shipworm) and Octopus are all molluscs. Bonellia is not a cnidarian, Enterobius is a roundworm, not a flatworm, and Pennatula (sea pen) is a cnidarian, not a sponge.

60. Answer: (C) Annelida and Arthropoda

True metameric segmentation, with the body divided into repeated segments, is found in Annelida and Arthropoda. Platyhelminthes and molluscs are not metamerically segmented.

61. Answer: (B) Periplaneta

Periplaneta (cockroach), like other arthropods, has an open circulatory system with blood flowing through haemocoel sinuses. Pheretima, Hirudinaria and Octopus have closed systems.

62. Answer: (B) Ctenoplana and Beroe

Ctenophores such as Ctenoplana and Beroe have biradial symmetry and lack cnidoblasts, using colloblasts to catch prey instead. Hydra, sea anemone and Aurelia are cnidarians with cnidoblasts.

63. Answer: (D) Kangaroo, hedgehog, dolphin, loris

Kangaroo, hedgehog, dolphin and loris are all viviparous mammals. Each other set has an egg-layer: ostrich, platypus and penguin, or kiwi.

64. Answer: (B) jointed legs and chitinous exoskeleton

Centipedes, cockroaches and crabs are arthropods, so they all have jointed legs and a chitinous exoskeleton. Anal cerci, tracheae, green glands and book lungs are found only in some of them.

65. Answer: (C) animals belonging to phylum-Porifera are exclusively marine

NCERT describes sponges as 'generally marine', and freshwater sponges such as *Spongilla* exist, so 'exclusively marine' is the wrong statement. Millipedes have two pairs of legs on each (diplo)segment, prawns carry antennules plus antennae (two pairs), and nematocysts are unique to cnidarians.

66. Answer: (C) Ten pairs of cranial nerves

Mammals have twelve pairs of cranial nerves; ten pairs is the condition in fishes and amphibians. Seven neck vertebrae, teeth set in sockets (thecodont) and alveolar lungs are all typical mammalian traits.

67. Answer: (D) absence of body cavity

Flatworms are acoelomates with no body cavity, whereas annelids are true coelomates. Both groups are bilaterally symmetrical, so bilateral symmetry does not set them apart, and a pseudocoel is found in roundworms.

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