# BIOLOGY

NEET

## CRASH COURSE

# ANIMAL KINGDOM


**SMART ACHIEVERS**

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# ANIMAL KINGDOM

## Non-Chordata

1. Animal kingdom is basically classified on the basis of some fundamental features like level of organisation, symmetry, cell organisation, coelom, segmentation, notochord, etc., have enabled us to broadly classify the animal kingdom. Besides the fundamental features, there are many other distinctive characters which are specific for each phyla or class.
2. Porifera includes multicellular animals which exhibit cellular level of organisation and have characteristic flagellated choanocytes. Ostia which acts as mouth is present all over the body, and a Single opening called osculum present on top. Sponges have a characteristic canal system. They are hermaphrodite. Skeleton made up of calcareous or siliceous spicules or spongin fibres.
3. Coelenterates have tentacles and bear Cnidoblasts. They are mostly aquatic, sessile or free-floating. They show radial symmetry, are acoelomate, diploblastic with gastrovascular cavity. Some cnidarians show metagenesis.
4. Ctenophores are exclusively marine, diploblastic acoelomate with radial symmetry. They lack cnidoblasts have colloblasts. Locomotion is by comb plates.
5. Platyhelminthes are first triploblastic animals. They are acoelomate, with bitateral symmetry and blind sac body plan. They are generally hermophrodite. They are mostly parasites and show distinct suckers and hooks for attachment.
6. Aschelminthes are triploblastic, unsegmented and show bilateral symmetry. They are pseudocoelomate with complete alimentary canal. They are generally dioecious.
7. Annelids they are first to acquire metameric segmentation and true coelom. Body bears appendages for locomotion in the form of chitinous setae or parapodia.
8. Arthropods are most abundant group of animals characterised by the presence of jointed appandages. They are triploblastic, coelomates with metamerically segmented body and open circulatory system. Exoskeleton is Chitinous.
9. Molluscs have soft unsegmented body covered by a hard calcareous shell secreted by a fold of skin mantle covering the visceral mass.
10. Echinoderms are exclusively marine and possess spiny skin. Their most distinctive feature is the presence of water vascular system. Larva has bilateral symmetry but the adult has radial symmetry. i.e., referogressive metamorphosis.
11. The Hemichordates are small group of worm like marine animals. They have a cylindrical body with proboscis, collar and trunk.

## Chordata

1. Phylum Chordata includes animals which possess a notochord either throughout or during early embryonic life. Other common features observed in the chordates are the dorsal, hollow nerve cord and paired pharyngeal gill slits.

2. Vertebrates are classified into two

   - Agnatha (don't posses jaws)
   - Gnathostomata (posses jaws)

   Agnatha includes the class Cyclostomata and gnathostomata includes two super class Pisces & Tetrapoda. Cyclostomata are the most primitive chordates and are ectoparasites on fishes.

3. Super Class Pisces is divided into two - chondrichthyes (cartilaginous endoskeleton) and osteichthyes (bony endoskeleton).

4. Tetrapoda includes Classes Amphibia, Reptilia, Aves and Mammalia. They have two pairs of limbs. The amphibians have adapted to live both on land and water. Reptiles are characterised by the presence of dry and cornified skin. Limbs are absent in snakes. Fishes, amphibians and reptiles are poikilothermous (cold-blooded). Aves are warm-blooded animals with feathers on their bodies and forelimbs modified into wings for flying. Hind limbs are adapted for walking, swimming, perching or clasping. The unique features of mammals are the presence of mammary glands and hairs on the skin. They commonly exhibit viviparity.

# EXERCISE

Q.1 Contractile vacuoles in protozoans primarily serve for
(1) Excretion (2) Water circulation (3) Osmoregulation (4) Water absorption

Q.2 Pseudopodia commonly form in :
(1) *Amoeba* only (2) A variety of protozoans only
(3) A variety of protozoans and leucocytes (4) *Amoeba* and leucocytes

Q.3 Contractile vacuole is present in
(1) *Paramoecium* (2) *Euglena* (3) *Amoeba* (4) All of these

Q.4 Protozoans respire through
(1) Mitochondria (2) Contractile vacuole (3) Pseudopodia (4) General surface

Q.5 During unfavourable conditions *Amoeba* reproduces through
(1) binary fission (2) budding (3) multiple fission (4) conjugation

Q.6 *Entamoeba histolytica* is found in man in
(1) Colon (2) Small intestine (3) Oral cavity (4) Stomach

Q.7 *Entamoeba histolytica* does not have or differs from *Amoeba* in the absence of
(1) Nucleus (2) Contractile vacuole
(3) Food vacuole (4) Pseudopodia

Q.8 Which one resides in the mouth of human beings?
(1) *Entamoeba histolytica* (2) *Amoeba proteus*
(3) *Entamoeba coli* (4) *Entamoeba gingivalis*

Q.9 The secondary host of *Plasmodium* is
(1) Male Culex (2) Male Anopheles (3) Female Anopheles (4) Female Culex

Q.10 Stage of *Plasmodium* infective to man and injected into human blood by mosquito is
(1) Trophozoite (2) Merozoite (3) Sporozoite (4) Cyst

Q.11 African sleeping sickness is caused by
(1) *Trypanosoma gambiense* and transmitted by *Glossina palpalis*
(2) *Entamoeba gingivalis* and transmitted by housefly
(3) *Plasmodium vivax* and transmitted by tsetse fly
(4) *Trypanosoma lewsi* and transmitted by bedbug

Q.12 Macro- and micronuclei are the characteristic feature of
(1) *Paramoecium* and *Vorticella* (2) *Opalina* and *Nyctotherus*
(3) *Hydra* and *Balantidium* (4) *Vorticella* and *Plasmodium*

Q.13 Most important character of all sponges
(1) Coelenteron (2) Herbivorous nutrition
(3) Choanocytes (4) Only sexual reproduction

Q.14 In sponges there is
(1) Radial symmetry (2) A true coelom
(3) A single exit and a number of mouthlets (4) A single mouthlet and a number of exists

Q.15 Organization in sponges is
(1) Protoplasmic grade (2) Cellular grade (3) Organ grade (4) Tissue grade

Q.16 Choanocytes or collar cells occur only in
(1) Cnidarians (2) Trematodes (3) Sponges (4) Earthworms

Q.17 Endoskeleton of sponges is made up of
(1) Cartilage
(2) Bone
(3) Calcareous spicules
(4) Calcareous or siliceous spicules, or siliceous spicules and spongin fibres or only spongin fibres

Q.18 'Venus' Flower Basket is the name of
(1) *Leucosolenia* (2) *Euplectella* (3) *Sycon* (4) *Euspongia*

Q.19 Porocytes are special cells for the passage of
(1) Excretory products within body of flatworms
(2) Sweat upon surface of mammalian epidermis
(3) Incoming water current in the body of sponges
(4) Outgoing water current on top of sponges

Q.20 Which of the following cells in sponges catch food?
(1) Pinacocytes (2) Choanocytes (3) Thesocytes (4) Archaeocytes

Q.21 Blind sac body plan is shown by
(1) annelids (2) arthropods (3) roundworms (4) coelenterates

Q.22 Ctenophores have similarities with members of
(1) Porifera (2) Annelida (3) Coelenterata (4) Arthropoda

Q.23 The *Jelly fish* is classified under the phylum
(1) Porifera (2) Cnidaria (3) Mollusca (4) Echinodermata

Q.24 Ctenophores have similarities with members of
(1) Porifera (2) Annelida (3) Coelenterata (4) Arthropoda

Q.25 The *jelly fish* is classified under the phylum
(1) Porifera (2) Cnidaria (3) Mollusca (4) Echinodermata

Q.26 Flame cells are excretory organs of
(1) Coelenterates (2) Platyhelminthes (3) Annelida (4) Echinodermata

Q.27 The secondary host of *Taenia* is
(1) Dog (2) Man (3) Pig (4) Snail

Q.28 Sexual dimorphism is found in
(1) *Hydra* (2) *Ascaris* (3) *Fasciola* (4) Earthworm

Q.29 *Wuchereria bancrofti* is transmitted by
(1) Culex (2) Anopheles (3) Tsetse fly (4) Sandfly

Q.30 Body is unsegmented in
(1) Scorpion (2) *Ascaris* (3) Earthworm (4) Mosquito

Q.31 Female *Ascaris* is identified on the basis of
(1) A common cloacal aperture (2) Straight posterior end
(3) Presence of preanal and postanal papillae (4) Presence of two spicules at posterior end

Q.32 Metamerism is characteristic of phylum
(1) Porifera (2) Platyhelminthes (3) Annelida (4) Mollusca

Q.33 Role of typhlosole in earthworms is to
(1) Emulsify food (2) Kill bacteria
(3) Increase absorptive area (4) Produce digestive enzymes

Q.34 Locomotion occurs in earthworm through
(1) setae (2) parapodia
(3) setae and circular muscles (4) setae, circular and longitudinal muscles

Q.35 Leech secretes which of the following anticoagulant?
(1) Hirudin (2) Heparin (3) Serotonin (4) Histamine

Q.36 Which is a connecting link?
(1) *Pila* (2) *Limulus* (3) *Periplaneta* (4) *Peripatus*

Q.37 Closed circulatory system does not occur in
(1) Cockroach (2) Cuttlefish (3) Snail (4) All of the above

Q.38 Water vascular system is found in
(1) Sponges (2) Cnidarians (3) Echinoderms (4) Arthropods

Q.39 Which of the following animal groups has radially symmetrical adult but bilaterally symmetrical larva?
(1) Echinodermata (2)Mollusca (3) Cnidaria (4)Annelida

Q.40 Echinoderms are -
(1) Freshwater forms
(2) Exclusively marine
(3) Both freshwater and marine
(4) None of the above

Q.41 In echinodermata, tube feet are related with
(1)Ambulacral system
(2) Excretory system
(3) Reproductive system
(4) Respiratory system

Q.42 Which is unrelated?
(1) Sea star (2) Sea cucumber (3) Sea squid (4) Sea urchin

Q.43 Echinoderms are heartless, brainless, headless, yet from evolutionary point of view, they have been placed on the top of the invertebrate phyla because of
(1) power of reproduction
(2) power of regeneration
(3) presence of enterocoel
(4) exclusively marine habitat

Q.44 Select the correct statements
(1) All annelids have setae
(2) All molluscs have external or internal shell
(3) All echinoderms have water vascular system
(4) All arthropods have at least one pair of antenna

Q.45 Characters of which group are present in all chordates in some stage or the other of their life cycle?
(1) Gill clefts, vertebral column and notochord
(2) Mammary glands, hairs and gill clefts
(3) Notochord, scales and dorsal tubular nervous system
(4) Notochord, gill clefts and dorsal tubular central nervous system

Q.46 Balanoglossus belongs to the group
(1) Platyhelminthes (2) Annelida (3) Cephalochordata (4) Hemichordata

Q.47 One of the primary characters of chordates is
(1) paired nerve cord
(2) solid ventral nerve cord
(3) ganglionated nerve cord
(4) dorsal tubular nerve cord

Q.48 Vertebral column is derived from
(1) Notochord
(2) Dorsal nerve cord
(3) Ventral nerve cord
(4) Outgrowth of cranium

Q.49 Group amniota includes
(1) Reptiles, birds and mammals
(2) Birds and reptiles
(3) Birds and mammals
(4) Reptiles and mammals

Q.50 Cold blooded animal is the one which has
(1) Cold blood
(2) Cold habitat
(3) Low body temperature
(4) No regulatory system of body temperature

Q.51 Homoiothermal animals are
(1) Pigeon, Bat and Rabbit (2) Fish, Frog and Lion
(3) Tortoise, Lizard and Pigeon (4) Rat, Snake and Crocodile

Q.52 In which group, the notochord is limited to only anterior part of proboscis ?
(1) Mammalia (2) Cephalochordata (3) Hemichordata (4) Urochordata

Q.53 Besides Annelida and Arthropoda, the metamerism is exhibited by
(1) Acanthocephala (2) Chordata (3) Mollusca (4) Cestoda

Q.54 In urochordata notochord is found in
(1) tail of adult (2) test of adult (3) head of adult (4) tail of larva

Q.55 Match List I (Larval forms) with List II (Corresponding adults) and select the correct answer using the codes given below the lists

| **List I** (Larval forms) | **List II** (Adults) |
|---|---|
| A Tornaria | 1 Star fish |
| B Brachiolaria | 2 Jelly fish |
| C Tadpole | 3 *Herdmania* |
| D Trochophore | 4 Nereis |
| | 5 *Balanoglossus* |

**Answer codes :**
(1) A = 5, B = 1, C = 3, D = 1 (2) A = 3, B = 2, C = 2, D = 4
(3) A = 5, B = 2, C = 3, D = 4 (4) A = 3, B = 1, C = 2, D = 1

Q.56 Which of the following statements is true?
(1) All chordates are vertebrates (2) All vertebrates are chordates
(3) Nonchordates have a vertebral column (4) Invertebrates possess a tubular nerve cord

Q.57 Which is viviparous?
(1) Bony fish (2) Lung fish (3) Frog (4) Shark

Q.58 The carnivorous fish, *Gambusia*, is introduced in the lakes, ponds to control a deadly disease in India, feeds on the larvae of -
(1) Nephantis (2) Dragon fly (3) Anopheles (4) All of these

Q.59 Heart pumps impure blood in
(1) Frog (Amphibia) (2) Shark (Pisces) (3) Lizard (Reptilia) (4) Whale (Mammalia)

Q.60 Lateral line system is present in
(1) Fish (2) Frog (3) Reptile (4) Man

Q.61 Which of the following is a true fish?
(1) Silver fish (2) Jelly fish (3) Star fish (4) Dog fish

Q.62 *Torpedo* is commonly known as
(1) Sucker fish (2) Globe fish (3) Electric ray (4) Sea horse

Q.63 Air bladder is present in
(1) *Anabas* (2) *Torpedo* (3) *Scoliodon* (4) Elasmobranch

Q.64 The heart is 3 or 4 chambered in the vertebrate group
(1) Fishes (2) Amphibia (3) Reptilia (4) Aves

Q.65 Bone marrow does not occur in
(1) Fishes (2) Amphibians (3) Birds (4) Reptiles

Q.66 Preen gland occurs in
(1) Pisces (2) Aves (3) Reptilia (4) Mammalia

Q.67 If a bird is transfered from 30°C to 10°C. The body temperature will change to
(1) 10°C (2) 30°C (3) 15°C (4) Remain unchanged

Q.68 Pneumatic bones are found in
(1) Pigeon (2) Whale (3) *Rana* (4) Shark

Q.69 Gorilla, Chimpanzee, man and monkey belong to same
(1) Order (2) Family (3) Genus (4) Species

Q.70 Which of the following is an egg-laying mammal?
(1) *Pteropus* (2) *Porcupine* (3) *Pangolin* (4) *Tachyglossus*

Q.71 Two chief features of mammals which distinguish them from other vertebrates are
(1) Hairy skin and oviparity (2) Hairy skin and mammary glands
(3) Mammary glands and teeth (4) Pinna and teeth

Q.72 Which animal eats its own faeces?
(1) Pig (2) Goat (3) Rabbit (4) Elephant

Q.73 Platypus is
(1) Prototheria (2) Metatheria (3) Eutheria (4) Primates

## AIIMS Special

**Instructions for following questions (Q.74 to Q.93).**

(1) If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).
(2) If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark (2).
(3) If Assertion is true statement but Reason is false, then mark (3).
(4) If both Assertion and Reason are false statements, then mark (4).

Q.74 **Assertion :** Annelids, arthropods and molluscs are protostomial coelomates.
**Reason :** All the three phyla include members with bilateral symmetry and true coelom.

Q.75 **Assertion :** Spongocoel of the sponges is also called paragastric cavity.
**Reason :** Trophocytes are present in the spongocoel & release digestive enzyme outside causing the digestion of food in spongocoel.

Q.76 **Assertion :** Blood in the insects is colourless i.e., without any respiratory pigment.
**Reason :** Tracheal network is present all over the body, supplies oxygen directly to the different body parts.

Q.77 **Assertion :** Type of metamorphosis in Periplaneta is of paurometabolus type.
**Reason :** The development of Periplaneta involves.
Egg $\rightarrow$ naiad $\rightarrow$ imago

Q.78 **Assertion :** In earthworm, lymph glands are white, fluffy bodies which are arranged on either side of dorsal blood vessel from 26th segment.
**Reason :** These lymph glands produce the phagocytes of coelomic fluid.

Q.79 **Assertion :** Bidder's canal are present in the kidney of frog for passage of sperms.
**Reason :** Vasa efferentia from the testes open into the anterior part of Bidder's canal.

Q.80 **Assertion :** Collaterial glands play important role in the reproductive system of Male cockroach.
**Reason :** Collaterial glands take part in the secretion of layer around spermatozoa to form spermatophore.

Q.81 **Assertion :** Giardia is called as grand old man of intestine.
**Reason :** It is a protozoan transmitted by mosquito.

Q.82 **Assertion :** Taenia solium is a cestode acquired by eating undercooked pork.
**Reason :** Adult Taenia causes cysticercosis in humans.

Q.83 **Assertion :** In metatherians, scrotum is present in front of penis.
**Reason :** In prototherians scrotum is present behind the penis.

Q.84 **Assertion :** In Balanoglossus, proboscis is involved in excretion.
**Reason :** Glomerulus is present in proboscis.

Q.85 **Assertion :** The duct-billed Platypus and the spiny anteater, both are egg layeing animals yet are grouped under mammals.
**Reason :** Both of them have seven crevical vertebrae and mammary glands without teats.

Q.86 **Assertion :** Bats and whales are classified as mammals.
**Reason :** Bats and whales show echolocation and four chambered heart.

Q.87 **Assertion :** Amphibians have evolved from fishes.
**Reason :** Take the example of the fossil Archaeopteryx.

Q.88 **Assertion :** Snakes exposed to gamma rays become non poisonous.
**Reason :** Poisonous snakes have poison glands and a pair of poison fangs. They are affected by gamma rays.

Q.89 **Assertion :** Among the land animals, the Cheetah can run fastest over the ground.
**Reason :** The Cheetah uses its powerful forelimbs to push itself forward during running.

Q.90 **Assertion :** Salamander, Sphenodon are classified as amphibian.
**Reason :** Their skin is naked, moist and glandular.

Q.91 **Assertion :** Lateral line system is found in fishes and aquatic larval amphibians.
**Reason :** Lateral line system has receptors which are the clusters of sensory cells derived from ectoderm.

Q.92 **Assertion :** A bony fish can stay at a particular depth without expending energy in swimming contrary to the cartilaginous fishes.
**Reason :** In bony fishes swim bladder is present which helps in buoyancy.

Q.93 **Assertion :** Reptiles can be termed as first true land animals.
**Reason :** These are completely independent of water due to development of internal fertilization and the presence of a special membrane, amnion around the developing embryo.

Q.36 Column-I contains organisms and Column-II contains their excretory structures. Choose the correct match form the options given below. **[AIIMS 2017]**

| | **Column-I (Organism)** | | **Column-II (Excretory structures)** |
|---|---|---|---|
| A. | Cockroach | I. | Nephridia |
| B. | Cat fish | II. | Malpighian tubules |
| C. | Earthworm | III. | Kidneys |
| D. | *Balanoglossus* | IV. | Flame cells |
| E. | Flatworm | V. | Proboscis gland |

(1) A-I, B-III, C-II, D-IV, E-V
(2) A-III, B-I, C-II, D-V, E-IV
(3) A-II, B-I, C-III, D-V, E-IV
(4) A-II, B-III, C-I, D-V, E-IV

## ANSWER KEY

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Q.1 | 3 | Q.2 | 3 | Q.3 | 4 | Q.4 | 4 | Q.5 | 3 | Q.6 | 1 | Q.7 | 2 |
| Q.8 | 4 | Q.9 | 3 | Q.10 | 3 | Q.11 | 1 | Q.12 | 1 | Q.13 | 3 | Q.14 | 3 |
| Q.15 | 2 | Q.16 | 3 | Q.17 | 4 | Q.18 | 2 | Q.19 | 3 | Q.20 | 2 | Q.21 | 4 |
| Q.22 | 3 | Q.23 | 2 | Q.24 | 3 | Q.25 | 2 | Q.26 | 2 | Q.27 | 3 | Q.28 | 2 |
| Q.29 | 1 | Q.30 | 2 | Q.31 | 2 | Q.32 | 3 | Q.33 | 3 | Q.34 | 4 | Q.35 | 1 |
| Q.36 | 4 | Q.37 | 4 | Q.38 | 3 | Q.39 | 1 | Q.40 | 2 | Q.41 | 1 | Q.42 | 3 |
| Q.43 | 3 | Q.44 | 3 | Q.45 | 4 | Q.46 | 4 | Q.47 | 4 | Q.48 | 1 | Q.49 | 1 |
| Q.50 | 4 | Q.51 | 1 | Q.52 | 3 | Q.53 | 2 | Q.54 | 4 | Q.55 | 1 | Q.56 | 2 |
| Q.57 | 4 | Q.58 | 3 | Q.59 | 2 | Q.60 | 1 | Q.61 | 4 | Q.62 | 3 | Q.63 | 1 |
| Q.64 | 3 | Q.65 | 3 | Q.66 | 2 | Q.67 | 4 | Q.68 | 1 | Q.69 | 1 | Q.70 | 4 |
| Q.71 | 2 | Q.72 | 3 | Q.73 | 1 | Q.74 | 2 | Q.75 | 3 | Q.76 | 1 | Q.77 | 3 |
| Q.78 | 2 | Q.79 | 1 | Q.80 | 4 | Q.81 | 3 | Q.82 | 3 | Q.83 | 3 | Q.84 | 1 |
| Q.85 | 1 | Q.86 | 2 | Q.87 | 3 | Q.88 | 1 | Q.89 | 1 | Q.90 | 4 | Q.91 | 2 |
| Q.92 | 1 | Q.93 | 2 | | | | | | | | | | |