04 Animal Kingdom

Question: Match List-I with List-II.

NEET 2023 Manipur

	List - I		List - II
(A)	Contractile vacuole	(I)	Asterias
(B)	Water vascular system	(II)	Amoeba
(C)	Canal system	(III)	Spongilla
(D)	Flame cells	(IV)	Taenia

Choose the correct answer from the options given below :

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

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

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

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

Answer: D

Explanation

The correct answer is :

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

Explanation :

(A) Contractile vacuoles are found in single-celled organisms like Amoeba (II). They help in osmoregulation by expelling excess water out of the cell.

(B) A water vascular system is a unique characteristic of echinoderms such as Asterias (I), a genus of starfish. This system is involved in locomotion, feeding, respiration, and excretion.

(C) The canal system is characteristic of sponges such as Spongilla (III). It aids in the circulation of water for feeding, respiration, and excretion.

(D) Flame cells are part of the excretory system in platyhelminthes like Taenia (IV), commonly known as tapeworm. These cells function in osmoregulation and excretion.

Question: Radial symmetry is NOT found in adults of phylum _____.

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A Hemichordata

B Coelenterata

C Echinodermata

D Ctenophora

Answer: A

Explanation

Radial symmetry is a type of symmetry where an organism can be divided into similar halves by more than two planes passing through the central axis. This type of symmetry is found in organisms that tend to meet their environment in all directions, such as aquatic animals.

1. Hemichordata : Adult organisms in this phylum, which includes acorn worms, pterobranchs, and graptolites, exhibit bilateral symmetry. This means they can be divided into two identical halves only along a single plane. Hence, radial symmetry is not found in the adults of this phylum.

2. Coelenterata (also known as Cnidaria) : This phylum includes jellyfish, sea anemones, and corals. They exhibit radial symmetry. So, radial symmetry is found in this phylum.

3. Echinodermata : Adult organisms in this phylum, which includes starfish, sea urchins, and sea cucumbers, exhibit radial symmetry. However, it's important to note that their larvae exhibit bilateral symmetry. Therefore, radial symmetry is found in adults of this phylum.

4. Ctenophora (also known as comb jellies) : These marine animals also exhibit radial symmetry. Thus, radial symmetry is found in this phylum.

Question: 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 B and C only

B B, D and E only

C C, D and E only

D A, C and D only

Answer: A

Explanation

Chordates are defined by having certain specific anatomical features at some point during their development. The correct attributes of chordates are:

1. Presence of a dorsal, hollow nerve cord (not a mid-dorsal, solid and double nerve cord as mentioned in statement A)

2. Presence of a closed circulatory system.

3. Presence of paired pharyngeal gill slits.

4. Presence of a post-anal tail.

5. Presence of a notochord.

Regarding the other statements :

- The heart of chordates is ventral, not dorsal (as in statement D).

- Chordates are triploblastic and coelomate, not pseudocoelomate (as in statement E).

So, based on these facts, the correct answer is :

Option A : B and C only.

Question: The unique mammalian characteristics are :

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A hairs, pinna and mammary glands

B hairs, pinna and indirect development

C pinna, monocondylic skull and mammary glands

D hairs, tympanic membrane and mammary glands

Answer: A

Explanation

Unique mammalian characteristics include:

1. Hair or fur: Mammals are the only animals that have hair. This hair helps to insulate the body to maintain a constant body temperature.

2. Mammary glands: These are glands that, in females, produce milk for the nourishment of young ones. This is a characteristic feature of all mammals and is, in fact, the feature that gives this group its name.

3. The presence of pinnae (external ears): Most mammals have pinnae that help to collect and direct sound waves into the ear.

Option B is incorrect because indirect development is not a unique characteristic of mammals; many animals, including certain insects,

amphibians, and fishes, undergo indirect development.

Option C is incorrect because a monocondylic skull, in which the skull only articulates with the first vertebra via a single condyle, is a characteristic of some reptiles and amphibians, not mammals. Mammals possess a dicondylic skull, with two occipital condyles.

Option D is incorrect because while mammals do have a tympanic membrane (ear drum), it is not unique to mammals; other vertebrate groups, such as birds and reptiles, also have a tympanic membrane.

So, the correct answer is :

Option A : hairs, pinna and mammary glands.

2022

MCQ (Single Correct Answer)

Q.1. Which of the following animals has three chambered heart?

A Pteropus

B Scoliodon

C Hippocampus

D Chelone

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Ans. (D)

Explanation

Option (4) is the correct answer because Chelone (turtle) is a reptile and the heart of reptiles are usually three-chambered except crocodiles.

Option (1) is incorrect as Pteropus (flying fox) possess four -chambered heart.

Option (2) and (3) are incorrect as Scoliodon (dog fish) and Hippocampus (sea horse) possess two - chambered heart.

Q.2. Match List-I with List-II

	List - I		List - II
(a)	Chlamydomonas	(i)	Conidia
(b)	Penicillium	(ii)	Zoospores

	List - I		List - II
(c)	Hydra	(iii)	Gemmules
(d)	Sponge	(iv)	Buds

Choose the correct answer from the options given below :

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

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

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

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

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Ans. (C)

Explanation

· Penicillium asexually reproduces by conidia formation

· Chlamydomonas asexually reproduces by zoospores

Hydra reproduces by budding whereas sponges produce gemmules for asexual reproduction

Q.3. Select the incorrect statements with respect to Cyclostomes:

(a) They lack scales and paired fins.

(b) They have circular mouth with jaws.

(c) They bear 6-15 pairs of gills.

(d) They migrate to deep sea for spawning.

Choose the most appropriate answer from the options given below:

A (a) and (d) only

B (a) and (b) only

C (b) and (c) only

D (b) and (d) only

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Ans. (D)

Explanation

Option (d) is the correct answer because statement (b) is false as cyclostomes have a circular mouth without jaws and statement (d) is false as they migrate from marine water to fresh water for spawning. Statements (a) and (c) are correct for cyclostomes as they have 6-15 pairs of gills and body is divoid of scales and paired fins.

Q.4. Exoskeleton of arthropods is composed of:

A Cutin

B Cellulose

C Chitin

D Glucosamine

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Ans. (C)

Explanation

Option (3) is the correct answer as chitin forms the exoskeleton is arthropods and is found in fungal cell wall. N-acetyl glucosamine is the monomeric unit. Cellulose is a polysaccharide. Cutin is a derived lipid.

Q.5. 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 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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Ans. (A)

Explanation

Option (a) is the correct answer because all chordates are divided into three subphyla - Urochordata, Cephalochordata and Vertebrata. In subphylum Vertebrata, notochord is replaced by bony or cartilaginous vertebral column in adults. Therefore, all vertebrates are chordates but all chordates are not vertebrates.

TOPIC 1
Phylum–Porifera

01 In case of poriferans, the spongocoel is lined with flagellated cells called **[NEET 2017]**

(a) ostia
(b) oscula
(c) choanocytes
(d) mesenchymal cells

Ans. ***(c)***

The body wall of a common sponge consists of three layer, i.e. **pinacoderm, choanoderm** and **mesophyll layer**. Choanoderm is inner cellular layer which consists of highly specialised flagellated cells called choanocytes. The beating of their flagella creates water current.

02 Body having meshwork of cells, internal cavities lined with food filtering flagellated cells and indirect development are the characteristics of phylum **[CBSE AIPMT 2015]**

(a) Coelenterata
(b) Porifera
(c) Mollusca
(d) Protozoa

Ans. ***(b)***

In Porifera (sponges), bodies are asymetrical. Body lacks tissue or organs, but from a meshwork of cells surrounding channels that open to the outside through pores, and that expand into internal cavities lined with food filtering flagellated cells (choanocytes).

03 Which one of the following statements about all the four *Spongilla,* leech, dolphin and penguin is correct? **[CBSE AIPMT 2010]**

(a) Penguin is homiothermic, while the remaining three are poikilothermic
(b) Leech is a freshwater form, while all others are marine
(c) *Spongilla* has special collared cells called choanocytes, not found in the remaining three
(d) All are bilaterally symmetrical

Ans. ***(c)***

Spongilla belongs to phylum–Porifera, in which, choanocytes are the characteristic cells, these are absent in leech, dolphin and pengiun. These distinctive cells line the interior body walls of sponges.

These cells have a central flagellum that is surrounded by a collar of microvilli. Choanocytes are versatile cells.

Their flagella beat to create the active pumping of water through the sponge, while the collars of the choanocytes are the primary areas where nutrients are absorbed into the sponge.

04 *Sycon* belongs to a group of animals which are best described as **[CBSE AIPMT 2003]**

(a) multicellular with a gastrovascular system
(b) multicellular having tissue organisation, but no body cavity
(c) unicellular or acellular
(d) multicellular without any tissue organisation

Ans. ***(d)***

Sycon belongs to phylum–Porifera. The porifers are most primitive group of multicellular animals. They have no tissue grade of organisation and represent cell aggregated body plan, hence, included in the sub-kingdom—Parazoa.

05 The canal system is a characteristic feature of **[CBSE AIPMT 1999]**

(a) echinoderms
(b) helminthes
(c) coelenterates
(d) sponges

Ans. ***(d)***

Sponges possess an extensive system of interconnected cavities called canal system, which typically consists of incurrent canals, radial canals, excurrent canals and spongocoel. The system is useful for nutrition, respiration and excretion.

06 What is true about all sponges without exception? **[CBSE AIPMT 1996]**

(a) They are all marine
(b) They have flagellated collar cells
(c) They have a mixed skeleton consisting of spicules and spongin fibres
(d) They reproduce only asexually by budding

Ans. ***(b)***

Sponges are all aquatic, mostly marine but few fresh water forms also exist. Choanocytes or collar cells are only present in sponges.

Sponges usually have a skeleton consisting of spicules or spongin fibres.

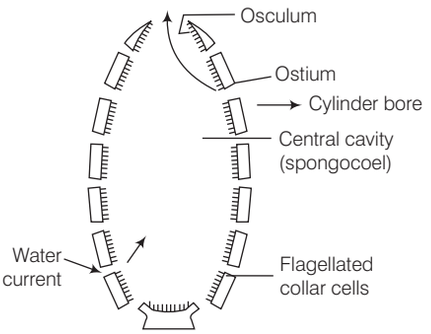
Sponges reproduce asexually by budding, gemmules and reproduce sexually too.

07 The simplest type of canal system in Porifera is **[CBSE AIPMT 1992]**

(a) ascon type (b) leucon type
(c) sycon type (d) radial type

Ans. ***(a)***

The simplest type of canal system in Porifera is ascon type.



Ascon type canal system (Porifera)

08 Classification of Porifera is based on **[CBSE AIPMT 1991]**

(a) branching (b) spicules
(c) reproduction (d) symmetry

Ans. ***(b)***

Classification of sponges is primarily based on skeleton which are spicules. These belongs to phylum- Porifera.

TOPIC 2
Phylum–Cnidaria (Coelenterata) and

09 Which one of the following living organisms completely lacks a cell wall? **[CBSE AIPMT 2014]**

(a) Cyanobacteria
(b) Sea-fan (*Gorgonia*)
(c) *Saccharomyces*
(d) Blue-green algae

Ans. ***(b)***

Sea-fan (*Gorgonia*) belongs to: kingdom –Animalia, phylum–Cnidaria and order–Gorgonacea. As, it is on animal, thus it lacks cell wall unlike cyanobacteria or blue-green algae (kingdom–Monera) have cell wall which is composed of peptidoglycan.

Saccharomyces is a genus of kingdom fungi which includes many species of yeast. Their cell wall is made up of chitin.

10 Select the taxon mentioned that represents both marine and freshwater species

(a) Echinoderms **[CBSE AIPMT 2014]**
(b) Ctenophora
(c) Cephalochordata
(d) Cnidaria

Ans. ***(d)***

Cnidarian members are found both in freshwater and marine environments, while members of Ctenophora, Cephalochordata and Echinodermata are found exclusively in marine environment.

11 In which animal nerve cell is present but brain is absent? **[CBSE AIPMT 2002]**

(a) Sponge (b) Earthworm
(c) Cockroach (d) *Hydra*

Ans. ***(d)***

The neurons of *Hydra* synapse with each other and other body cells. As a result, it responds to external stimuli. However, there is no brain in *Hydra* to coordinate the responses.

12 In *Hydra*, waste material of food digestion and nitrogenous waste material are removed from **[CBSE AIPMT 2001]**

(a) mouth and mouth
(b) body wall and body wall
(c) mouth and body wall
(d) mouth and tentacles

Ans. ***(c)***

In *Hydra*, undigested residues are egested from coelentron through mouth, while nitrogenous excretory product (ammonia) is removed through general body surface.

Hydra are solitary, sessile, freshwater coelenterates. They are found in lakes, ponds stream. *Hydra* is an ammonotelic animal i.e., it excretes waste material in the form of ammonia.

13 Most appropriate term to describe the life cycle of *Obelia* is **[CBSE AIPMT 1998]**

(a) neoteny (b) metagenesis
(c) metamorphosis
(d) All of these

Ans. ***(b)***

True alternation of generations is alternation between haploid gametophyte and diploid sporophyte phase. In *Obelia*, the asexual polypoid phase is alternate with sexual medusoid phase and this type of life cycle is called metagenesis.

Neoteny It is also called Juvenilisation, is one of the two ways by which paedomorphism can arise.

Paedomorphism It is the retention by adults of traits previously seen only in young, and is a subject studied in the development biology.

Metamorphosis It is a biological process by which an animal physically develops after birth or notching, involving a conspicous and relatively abrupt change in the animal body structure through cell growth and differentiation. e.g., in some insects, molluses etc.

14 Point out a non-parasite **[CBSE AIPMT 1994]**

(a) tapeworm (b) mosquito
(c) leech (d) sea anemone

Ans. ***(d)***

Sea anemone is a coelenterate found in marine water, attached to the empty shell of gastropods already occupied by hermit crab, this association is symbiosis not parasitism.

Tapeworm, mosquito and leech are parasites.

15 Special character of coelenterates is **[CBSE AIPMT 1994]**

(a) polymorphism
(b) nematocysts
(c) flame cells
(d) hermaphroditism

Ans. ***(b)***

The most characteristic feature of coelenterates is the presence of nematocysts or stinging cells. Nematocysts are mainly concerned with food capture, defence and attachment.

16 Which one of the following animals possesses nerve cells but no nerves? **[CBSE AIPMT 1993]**

(a) *Hydra*
(b) Tapeworm
(c) Earthworm
(d) Frog's tadpole

Ans. ***(a)***

Hydra has nerve cells but no nerves. *Hydra* possesses a very primitive nervous system consisting of a synaptic network of bipolar and multipolar nerve cells.

17 Budding is a normal mode of asexual reproduction in **[CBSE AIPMT 1993]**

(a) starfish and *Hydra*
(b) *Hydra* and sponges
(c) tapeworm and *Hydra*
(d) sponge and starfish

Ans. ***(b)***

Hydra and sponges reproduce asexually by exogenous budding, a type of vegetative propagation.

18 Jelly fish belongs to class **[CBSE AIPMT 1989]**

(a) Hydrozoa
(b) Scyphozoa
(c) Anthozoa
(d) None of these

Ans. ***(b)***

Aurelia (jellyfish) belongs to class—Scyphozoa of phylum—Cnidaria. It is without skeleton.

19 Organ pipe coral is **[CBSE AIPMT 1988]**

(a) *Tubipora* (b) *Astraea*
(c) *Helipora* (d) *Fungia*

Ans. ***(a)***

Organ pipe coral is the common name of *Tubipora.* This is coelenterate and comes under class—Anthrozoa.

TOPIC 3
Ctenophora

20 Biradial symmetry and lack of cnidoblasts are the characteristics of **[CBSE AIPMT 2006]**

(a) Starfish and sea anemone
(b) *Ctenoplana* and *Beroe*
(c) *Aurelia* and *Paramecium*
(d) *Hydra* and starfish

Ans. ***(b)***

Ctenoplana and *Beroe* lack cnidoblasts and have biradial symmetry. These belong to phylum-Ctenophora.

Hydra, sea anemone and *Aurelia* are coelenterates which have cnidoblasts. Although sea anemone has biradial symmetry.

TOPIC 4
Phylum-Platyhelminthes

21 Match the following columns and select the correct option. **[NEET (Sep.) 2020]**

	Column I		Column II
A.	Gregarious, polyphagous pest	1.	*Asterias*
B.	Adult with radi symmetry and larva with bilateral symmetry	2.	Scorpion
C.	Book lungs	3.	*Ctenoplana*
D.	Bioluminescence	4.	*Locusta*

	A	B	C	D
(a)	4	1	2	3
(b)	3	2	1	4
(c)	2	1	3	4
(d)	1	3	2	4

Ans. ***(a)***

The correct option is (a). It can be explained as follows

Locusta is a gregareous pest.

In echinoderms, adults are radially symmetrical but larvae are bilaterally symmetrical.

Scorpions respire through book lungs.

Bioluminescence is well-marked in ctenophores.

22 Bilaterally symmetrical and acoelomate animals are exemplified by **[NEET (Sep.) 2020]**

(a) Platyhelminthes (b) Aschelminthes
(c) Annelida (d) Ctenophora

Ans. ***(a)***

Platyhelminthes are bilaterally symmetrical, triploblastic and acoelomate animals with organ level of organisation.

Aschelminthes are bilaterally symmetrical, triploblastic and pseudocoelomate with organ system grade of body organisation. Annelida are bilaterally symmetrical, triploblastic and truly schizocoelomate. Ctenophora are biradially symmetrical,triploblastic and acoelomates.

23 *Planaria* possess high capacity of **[CBSE AIPMT 2014]**

(a) metamorphosis
(b) regeneration
(c) alternation of generation
(d) bioluminescence

Ans. ***(b)***

Planaria is a flatworm belonging to phylum-Platyhelminthes. They are the simplest form of multicellular animal.

They have high capacity of regeneration of new tissue at the wound site *via* cell proliferation (blastema formation) and the remodelling of pre-existing tissue to restore symmetry and proportion. This is due the neoblast cells.

These cells are usually scattered through out the body and are able to participate in any type of development. The regenerative capacity of different body sections is an indicator of the presence of different numbers of neoblast cells.

24 One example of animal having a single opening to the outside that serves both as mouth as well as anus is **[CBSE AIPMT 2010]**

(a) *Octopus* (b) *Asterias*
(c) *Ascidia* (d) *Fasciola*

Ans. ***(d)***

Fasciola hepatica (sheep liver fluke) belongs to phylum-Platyhelminthes.

These worms have incomplete alimentary canal, there is a single opening for both ingestion and egestion. This is also called as blind sac body plan.

25 Which one of the following kinds of animals are triploblastic? **[CBSE AIPMT 2010]**

(a) Flatworms
(b) Sponges
(c) Ctenophores
(d) Corals

Ans. ***(a)***

Flatworms (phylum-Platyhelminthes) are triploblastic animals. The cells of the body wall are arranged in three layers. i.e. ectoderm, mesoderm and endoderm.

Sponges, ctenophores and corals are diploblastic animals.

26 During its life cycle, *Fasciola hepatica* (liver fluke) infects its intermediate host and primary host at the following larval stages respectively **[CBSE AIPMT 2003]**

(a) metacercaria and cercaria
(b) miracidium and metacercaria
(c) redia and miracidium
(d) cercaria and redia

Ans. ***(b)***

Liver fluke (*Fasciola hepatica*) is a 'digenetic' endoparasite, i.e. its life cycle completes within two hosts. The primary host is sheep and the secondary or intermediate host is fresh water gastropod, snail. Fasciola hepatica infects its intermediate host at miracidium stage and its primary host at metacercaria stage.

27 Which one belongs to Platyhelminthes? **[CBSE AIPMT 1994]**

(a) *Schistosoma* (b) *Trypansoma*
(c) *Plasmodium* (d) *Wuchereria*

Ans. ***(a)***

Schistosoma is the common **human blood fluke** and belongs to Platyhelminthes. It is a genus of trematodes.

It is a parasitic flatworm responsible for a highly significant group of infections in humans termed as Schistosomiasis.

28 What is true about *Taenia saginata*? **[CBSE AIPMT 1993]**

(a) Life history has pig as intermediate host
(b) There are two large suckers on scolex
(c) Rostellar hooks are absent
(d) Rostellum has double circle of hooks

Ans. ***(c)***

Taenia saginata do not possess rostellum and rostellar hooks.

29 What is correct about *Taenia*? **[CBSE AIPMT 1992]**

(a) Male organs occur in posterior proglottids
(b) Male organs occur in anterior proglottids
(c) Female organs occur in anterior proglottids
(d) Mature proglottids contain both male and female organs

Ans. ***(d)***

Body of *Taenia* is divided into scolex, neck and strobilla. Strobilla is the main body and made of proglottids. A proglottid is a unit of body enclosing a complete set of genitalia.

Mature proglottids are in the middle having both male and female reproductive organs.

30 The excretory structures of flat worms/*Taenia* are **[CBSE AIPMT 1991]**

(a) flame cells
(b) protonephridia
(c) Malpighian tubules
(d) green glands

Ans. ***(a)***

Excretory structures of flatworms/*Taenia* are flame cells. Longitudinal and cross-connecting excretory canals drain fluid from flame cells in each proglottid. Main excretory products are ammonia and fatty acids.

31 Bladderworm/cysticercus is the larval stage of **[CBSE AIPMT 1991]**

(a) tapeworm (b) roundworm
(c) pinworm (d) liver fluke

Ans. ***(a)***

Bladderworm/Cysticercus is the larval stage of tapeworm. It is found in the muscles of pig and this is the stage through which man gets infected by eating raw or poorly cooked 'measly pork'.

32 Transfer of *Taenia* to secondary host occurs as **[CBSE AIPMT 1989, 90]**

(a) oncosphere
(b) cysticercus
(c) morula
(d) egg

Ans. ***(a)***

Oncospheres pass through faecal matter of man. Secondary host pig acquires infection by ingesting the oncospheres.

TOPIC 5
Phylum-Aschelminthes

33 Which one of the following statements about certain given animals is correct? **[CBSE AIPMT 2010]**

(a) Round worms (Aschelminthes) are pseudocoelomates
(b) Molluscs are acoelomates
(c) Insects are pseudocoelomates
(d) Flatworms (Platyhelminthes) are coelomates

Ans. ***(a)***

Round worms (phylum–Aschelminthes) are pseudocoelomates, false coelom is derived from embryonic blastocoel.

Flat worms (phylum–Platyhelminthes) are acoelomate animals.

Molluscs and insects (phylum–Arthropoda) are coelomate animals.

34 Which one of the following groups of animals is bilaterally symmetrical and triploblastic? **[CBSE AIPMT 2009]**

(a) Coelenterates (cnidarians)
(b) Aschelminthes (roundworms)
(c) Ctenophores
(d) Sponges

Ans. ***(b)***

Aschelminthes are bilateral symmetrical and triploblastic animals, e.g. *Ascaris*.

Coelenterates are radially symmetrical and diploblastic animals, e.g. *Obelia*.

Ctenophores are radially symmetrical and diploblastic animals, e.g. *Ctenoplana*.

Sponges are asymmetrical or radially symmetrical and diploblastic animals, e.g. *Sycon*.

35 *Ascaris* is characterised by **[CBSE AIPMT 2008]**

(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)

Ans. ***(b)***

Ascaris is endoparasite of man. It inhabits the small intestine more frequently of children than of adults. The body is elongate, cylindrical and gradually tapering at both ends. There is no metameric segmentation. In *Ascaris* between body wall and visceral organs is a spacious fluid filled cavity. This cavity is not true coelom as it is not lined by coelomic epithelium, has no relation with reproductive and excretory organs and develops from blastocoel. This body cavity is referred as pseudocoel.

36 What is common between *Ascaris lumbricoides* and *Anopheles stephensi*? **[CBSE AIPMT 2000]**

(a) Hibernation
(b) Metamerism
(c) Anaerobic respiration
(d) Sexual dimorphism

Ans. ***(d)***

Both *A. lumbricoides* and *A. stephensi;* have different males and females and it is possible to distinguish between them morphologically.

37 *Ascaris* larva is called **[CBSE AIPMT 1992]**

(a) cysticercus (b) rhabditiform
(c) hexacanth (d) onchosphere

Ans. ***(b)***

Ascaris larva is called **rhabditoid** or **rhabditiform** due to its close resemblance with *Rhabditis.*

38 *Ascaris lumbricoides* infection occurs through **[CBSE AIPMT 1991]**

(a) sole of uncovered feet
(b) contaminated cooked measly pork
(c) improperly cooked measly pork
(d) from air through inhalation

Ans. ***(b)***

The transmission of infective stage through embryonated egg of *Ascaris lumbricoides* takes place by contaminated cooked measly pork and contaminated water.

TOPIC 6
Phylum-Annelida

39 Match the List-I with List-II. **[NEET 2021]**

	List-I		List-II
A.	Metamerism	1.	Coelenterata
B.	Canal system	2.	Ctenophora
C.	Comb plates	3.	Annelida
D.	Cnidoblasts	4.	Porifera

Choose the correct answer from the options given below.

	A	B	C	D
(a)	4	3	1	2
(b)	3	4	1	2
(c)	3	4	2	1
(d)	4	1	2	3

Ans. ***(c)***

(c) (A)- (3), (B)-(4),(C)-(2),(D)-(1)

The annelid worms were thought to have evolved from a coelomate worm-like ancestor which developed metameric segmentation or metamerism and the segments were termed as somites or metameres.

Sponges or porifera have a water transport or canal system. Water enters *via* minute pore (ostia) in the body wall into the central cavity spongocoel from where it goes out *via* osculum.

The body of ctenophores bear eight external rows of ciliated comb plates which helps in locomotion.

The name Cnidaria is derived from cnidocytes or cnidoblast that are found on the tentacles and body of the organism.

40 Which of the following options does correctly represent the characteristic features of phylum–Annelida? **[NEET (Oct.) 2020]**

(a) Triploblastic, unsegmented body and bilaterally symmetrical
(b) Triploblastic, segmented body and bilaterally symmetrical
(c) Triploblastic, flattened body and acoelomate condition
(d) Diploblastic, mostly marine and radially symmetrical

Ans. ***(b)***

Animals belonging to phylum-Annelida are triploblastic, bilaterally symmetrical and metamerically segmented.

They exhibit organ system level of body organisation with presence of coelom. They may be aquatic (marine and freshwater) or terrestrial, free-living and sometimes parasitic.

41 Which of the following animals are true coelomates with bilateral symmetry? **[NEET (Odisha) 2019]**

(a) Adult echinoderms
(b) Aschelminthes
(c) Platyhelminthes
(d) Annelids

Ans. ***(d)***

Annelids are true coelomates with bilateral symmetry. These exhibit organ-system level of body organisation with true coelom. They are triploblastic, metamerically segmented and coelomate animals, e.g. earthworm.

42 *Pheretima* and its close relatives derive nourishment from **[CBSE AIPMT 2012]**

(a) sugarcane roots
(b) decaying fallen leaves and soil organic matter
(c) soil insects
(d) small pieces of fresh fallen leaves of maize

Ans. ***(b)***

Food of earthworm (*Pheretima* sp.) consists of organic matter, fallen decaying leaves, algae, etc. present in the soil. Food is swallowed along with soil by sucking action.

43 One very special feature in the earthworm *Pheretima* is that **[CBSE AIPMT 2011]**

(a) the typhlosole greatly increases the effective absorption area of the digested food in the intestine
(b) the S-shaped setae embedded in the integument are the defensive weapons used against the enemies
(c) it has a long dorsal tubular heart
(d) fertilisation of eggs occurs inside the body

Ans. ***(a)***

A pair of short and conical intestinal caecae project from the intestine on the 26th segment. The characteristic feature of the intestine between 26-35 segments is the presence of internal median fold of dorsal wall called typhlosole.

This increases the effective area of absorption in the intestine.

44 If a live earthworm is pricked with a needle on its outer surface without damaging its gut, the fluid that comes out is **[CBSE AIPMT 2009]**

(a) excretory fluid
(b) coelomic fluid
(c) haemolymph
(d) slimy mucus

Ans. ***(b)***

The body cavity of earthworm is true coelom (schizocoel) as it is formed by the division of mesoderm. The coelom is filled with milky, alkaline coelomic fluid, which contains different types of corpuscles. Thus, if alive earthworm is prickled with a needle on its outer surface, the coelomic fluid will come out.

Excretory fluids Excretory system regulate the chemical composition of body fluids by removing metabolic waste substances.

Haemolymph It is a fluid in the open circulatory system of arthropods, e.g. spiders, crustaceans etc.

It is analogous to the fluids and cells making both blood and interstitial fluid.

Slimy mucus Mucus trap bacteria cell debris and prevents it from entering into lungs and in their body parts.

45 Which one of the following is not a characteristic of phylum–Annelida? **[CBSE AIPMT 2008]**

(a) Closed circulatory system
(b) Segmentation
(c) Pseudocoelom
(d) Ventral nerve cord

Ans. ***(c)***

Name of the phylum–Annelida was first coined by **Lamarck**. The body of annelids is elongated, bilaterally symmetrical, triploblastic, truely coelomate and metamerically segmented into similar metameres. The coelom is true, schizocoelous. Blood vascular system is closed. The nervous system is with a pair of cerebral ganglia and a double ventral nerve cord bearing ganglia and lateral nerves in each segment.

The blood vascular system consists of blood vessels and capillaries. Blood is composed of fluid plasma and colourless corpuscles, physiologically comparable to the leucocytes of vertebrates.

Pseudocoelom is the body cavity of Aschelminthes (roundworm).

46 Earthworms have no skeleton but during burrowing, the anterior end becomes turgid and acts as a hydraulic skeleton. It is due to **[CBSE AIPMT 2008]**

(a) coelomic fluid (b) blood
(c) gut peristalsis (d) setae

Ans. ***(a)***

The body cavity (coelom) of earthworm is filled with an alkaline, colourless or milky coelomic fluid containing water, salts some proteins and four types of coelomic corpuscles i.e. phagocytes, mucocytes, circular nucleated cells and chloragogen cells. During burrowing the coelomic fluid becomes turgid and acts as hydraulic skeleton.

Earthworm (*Pheretima posthuma*) living in burrows made in moist earth. The body shows metameric segmentation. About the middle of each segment there is a ring of tiny curved bristles called setae or chaetae, formed of a horny nitrogenous organic substance known as chitin. The setae and musculature serve for locomotion as well as for anchoring body firmly in burrow.

The blood of earthworm is composed of a fluid plasma and colourless coruscles, physiologically comparable to the leucocytes of vertebrates.

47 Which one of the following is correct matching pair of a body feature and the animal possessing it? **[CBSE AIPMT 2007]**

(a) Post-anal tail — *Octopus*
(b) Ventral central nervous system — Leech
(c) Pharyngeal gills slits — *Chameleon* absent in embryo
(d) Ventral heart — Scorpion

Ans. ***(b)***

The nervous system of leech consists of ventral central nervous system, peripheral nervous system and sympathetic nervous system.

48 In which of the following chlorocruorin pigment is found?

(a) Annelida **[CBSE AIPMT 2001]**
(b) Echinodermata
(c) Insecta
(d) Lower Chordata

Ans. ***(a)***

Chlorocruorin is a respiratory pigment (green, fluorescing red) dissolved in the plasma of some polychaete worms (annelid).

49 Functionwise, just as there are nephridia in an earthworm, so are **[CBSE AIPMT 1996]**

(a) parotid glands in toad
(b) statocysts in prawn
(c) flame cells in liver fluke
(d) myotomes in fish

Ans. ***(c)***

Flame cells in liver fluke are excretory organs as nephridia in an earthworm.

50 True coelom is the space lying between the alimentary canal and body wall enclosed by the layers of **[CBSE AIPMT 1996]**

(a) ectoderm on both sides
(b) endoderm on one side and ectoderm on the other
(c) mesoderm on one side and ectoderm on the other
(d) mesoderm on both sides

Ans. ***(d)***

Coeloms are secondary body cavities bounded on all sides by mesodermal peritoneum. The true coelom arises within the mesoderm itself.

51 Coelom derived from blastocoel is known as **[CBSE AIPMT 1994]**

(a) enterocoelom
(b) schizocoelom
(c) pseudocoelom
(d) haemocoelom

Ans. ***(c)***

Coelom derived from blastocoel is pseudocoelom. These are cavities not entirely lined by peritoneum (thin cellular membrane derived from mesoderm).

Embryologically pseudocoel may be a persistent blastocoel. Such type of coelom is found in **Nematohelminthes**.

52 Which one assists in locomotion? **[CBSE AIPMT 1993]**

(a) Trichocysts in *Paramecium*
(b) Pedicellariae of starfish
(c) Clitellum in *Pheretima*
(d) Posterior sucker in *Hirudinaria*

Ans. ***(d)***

In *Hirudinaria* locomotion takes place by looping and swimming in which its posterior suckers provide help as setae are not present for locomotion.

53 Blood of *Pheretima* is **[CBSE AIPMT 1990]**

(a) blue with haemocyanin in corpuscles
(b) blue with haemocyanin in plasma
(c) red with haemoglobin in corpuscles
(d) red with haemoglobin in plasma

Ans. ***(d)***

Blood of *Pheretima* is red in colour and respiratory pigment haemoglobin is dissolved in blood plasma.

54 *Pheretima posthuma* is highly useful as **[CBSE AIPMT 1990]**

(a) their burrows make the soil loose
(b) they make the soil porous, leave their castings and take organic debris in the soil

(c) they are used as fish meal
(d) they kill the birds due to biomagnification of chlorinated hydrocarbons

Ans. ***(b)***

Pheretima posthuma is useful for farmers as they enrich the soil by their excretory wastes and make the soil porous.

55 Earthworms are **[CBSE AIPMT 1989]**

(a) useful
(b) harmful
(c) more useful than harmful
(d) more harmful

Ans. ***(a)***

Earthworms are **friends of farmers** because they enrich the soil by nephridial excretion, it increases the fertility of soil. They also help in ploughing of fields, make the soil porous. Earthworms are also used for dissection in laboratories.

56 Photoreceptors of earthworm occur on **[CBSE AIPMT 1989]**

(a) clitellum (b) many eyes
(c) dorsal surface (d) lateral sides

Ans. ***(c)***

Photoreceptors (with L-shaped lens or optic organelles) are present on the surface of skin on dorsal side. Earthworm has **no eyes,** photoreceptors are used to judge intensity and duration of light, but do not have the capacity of vision.

TOPIC 7
Phylum-Arthropoda

57 Which one of the following belongs to the family-Muscidae ? **[NEET 2021]**

(a) Firefly (b) Grasshopper
(c) Cockroach (d) Housefly

Ans. ***(d)***

Housefly belong to Muscidae family. Muscidae are a family of flies found in superfamily-Muscoidea. The family-Muscidae is a large dipteran family comprised of more than 5000 species.

Other options can be explained as:

Firefly belong to Lampyridae family
Grasshopper belong to Acrididae family
Cockroach belong to Blattidae family.

58 Match the following organisms with their respective characteristics. **[NEET (National) 2019]**

	Column I		Column II
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	B	C	D
(a)	(iii)	(iv)	(ii)	(i)
(b)	(ii)	(iv)	(iii)	(i)
(c)	(iii)	(ii)	(iv)	(i)
(d)	(iii)	(ii)	(i)	(iv)

Ans. ***(a)***

(A)–(iii), (B)–(iv), (C)–(ii), (D)–(i)

Pila or apple snail contains a file-like rasping organ called radula for feeding.

Bombyx or silkworm is an arthropod in which excretion occurs through Malpighian tubules. The body of ctenophore *Pleurobranchia* bears eight rows of ciliated comb plates, which help in locomotion.

In *Taenia*, excretion occurs through specialised cells called flame cells which contain a protonephridia.

59 Which of the following features is not present in the phylum–Arthropoda? **[NEET 2016, Phase I]**

(a) Metameric segmentation
(b) Parapodia
(c) Jointed appendages
(d) Chitinous exoskeleton

Ans. ***(b)***

Parapodia are present in aquatic annelids like *Nereis*, which help them in swimming. Other three features, i.e. metameric segmentation, jointed appendages and chitinous exoskeleton are present in phylum—Arthropoda. Out of these metameric segmentation is visible as tagmetisation.

60 Match column I with column II for housefly classification and select the correct option using the codes given below: **[NEET 2016, Phase II]**

	Column I		Column II
A.	Family	1.	Diptera
B.	Order	2.	Arthropoda
C.	Class	3.	Muscidae
D.	Phylum	4.	Insecta

Codes

	A	B	C	D
(a)	3	1	4	2
(b)	3	2	4	1
(c)	4	3	2	1
(d)	4	2	1	3

Ans. ***(a)***

Classification of housefly

A. Family – Muscidae
B. Order – Diptera
C. Class – Insecta
D. Phylum – Arthropoda

Short Trick The question can be easily solved *via* elimination technique as (D) phylum is given with (2) Arthropoda combination in only option (a). This easily eliminates other options as correct answer. Thus, saves your time too.

61 Which group of animals belong to the same phylum? **[NEET 2013]**

(a) Malarial parasite, *Amoeba*, mosquito
(b) Earthworm, pinworm, tapeworm
(c) Prawn, scorpion, *Locusta*
(d) Sponge, sea anemone, starfish

Ans. ***(c)***

Prawn, *Scorpion*, *Locusta* belong to phylum- Arthropoda therefore, it is correct. Others can be corrected as Malarial parasite (*Plasmodium vivax*) and *Amoeba* belong to phylum-Protozoa.

Mosquito—Phylum -Arthropoda

Earthworm — Phylum -Annelida

Pinworm and Tapeworm -Phylum-Aschelminthes

Sponge—Phylum—Porifera, Sea anemone -
Phylum — Coelenterata

Starfish — Phylum-Echinodermata

62 One of the representative of Phylum- Arthropoda is **[NEET 2013]**

(a) cuttle fish (b) silver fish
(c) puffer fish (d) flying fish

Ans. ***(b)***

Silver fish — Arthropoda (phylum)

Silver fish is a small, wingless insect in the order Thysanura.

Cuttle fish — Mollusca

Putter fish — Chordata (phylum), class — Pisces

Flying fish — Pisces.

63 Which of the following are correctly matched with respect to their taxonomic classification? **[NEET 2013]**

(a) Flying fish, cuttle fish, silver fish—Pisces
(b) Centipede, millipede, spider, scorpion—Insecta
(c) House fly, butterfly, tse-tse fly, silver fish—Insecta
(d) Spiny anteater, sea urchin, sea cucumber—Echinodermata

Ans. ***(c)***

Option (c) is correctly matched housefly, butterfly, tse-tse fly, silver fish–Insecta of phylum–Arthropoda.

Others can be corrected as

Flying fish, class – Osteichthyes of phylum – Pisces, cuttle fish (*Sepia*) of phylum – Mollusca

Silver fish, class–Insecta of phylum – Arthropoda

Sea urchin and sea cucumber belong to Echinodermata.

Spider and scorpion belong to class – Arachnida of phylum — Arthropoda.

Centipede belongs to class – Chilopoda of phylum – Arthropoda.

Millipede belongs to class – Diplopeda of phylum – Arthropoda.

Spring anteater belongs to phylum – Mammalia.

64 Which one of the following have the highest number of species in nature? **[CBSE AIPMT 2011]**

(a) Insects
(b) Birds
(c) Angiosperms
(d) Fungi

Ans. ***(a)***

More than 70% of all the species recorded are animals. Among animals, insects are the most species rich taxonomic group, making more than 70% of the total. It means out of every 10 animals on this planet, 7 are insects.

65 Which of the following is correctly states as it happens in the common cockroach? **[CBSE AIPMT 2011]**

(a) Oxygen is transported by haemoglobin in blood
(b) Nitrogenous excretory product is urea
(c) The food is ground by mandibles and gizzard
(d) Malpighian tubules are excretory organs projecting out from the colon

Ans. ***(c)***

In cockroach, mandibles are a pair of hard, strong, large, dark coloured triangular, structures which move in horizontal motion and crush food between them.

Gizzard or proventriculus has an outer layer of thick circular muscles and thick inner cuticle forming six highly chitinous plate called teeth. The gizzard acts as the grinding chamber and helps in grinding the food particles.

66 Which one of the following groups of three animals each is correctly matched with their one characteristic morphological feature? **[CBSE AIPMT 2008]**

	Animals		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

Ans. ***(c)***

Characteristic	Animal
Bilateral symmetry	—Liver fluke, *Taenia*
Jointed appendages	—Prawn, cockroach, scorpion
Ventral solid central nervous system	—Scorpion, spider, Cockroach
Metameric segmentation	—Annelids
Radial symmetry	—Sea anemone

67 Which one of the following is the true description about an animal concerned? **[CBSE AIPMT 2008]**

(a) Earthworm— The alimentary canal consists of a sequence of pharynx, oesophagus, stomach, gizzard and intestine
(b) Frog — Body divisible into three regions— head, neck and trunk
(c) Rat — Left kidney is slightly higher in position than the right one
(d) Cockroach — 10 pairs of spiracles (2 pairs on thorax and 8 pairs on abdomen)

Ans. ***(d)***

The respiratory system of cockroach consists of tracheae, tracheoles and spiracles. The main tracheal trunks open to exterior on body surface through 10 pairs of segmentally arranged spiracles. Two pair of spiracles are thoracic (one between pro and mesothorax and other between meso and metathorax). Eight pairs of spiracle are abdominal (one pair in each of the first eight abdominal segments).

Alimentary canal of earthworm is complete and functionally regioned into buccal chamber, pharynx, oesophagus, gizzard, stomach and intestine.

Frog's body has two main parts, i.e., head and trunk. Absence of neck and tail provide convenience in both hopping and swimming.

68 Which one of the following phyla is correctly matched with its two general characteristics? **[CBSE AIPMT 2008]**

(a) Arthropoda — Body divided into head, thorax and abdomen and respiration by tracheae
(b) Chordata — Notochord at some stage and separate anal and urinary openings to the outside
(c) Echinodermata— Pentamerous radial symmetry and mostly internal fertilisation
(d) Mollusca — Normally oviparous and development through a trochophore or veliger larva

Ans. ***(a)***

Arthropoda is the largest phylum of animal kingdom. Body of an arthropod is divisible into head, thorax and abdomen. Head and thorax often fused to form cephalothorax. The respiration takes place by general body surface, gills, tracheae or book lungs.

Molluscs are mostly dioecious or monoecious, one or more gonads with gonoducts, opening into renal ducts or to exterior. The fertilisation is external or internal, development direct or indirect through free larval forms.

Echinoderms have a pentamerous radial symmetry derived from an original bilateral symmetry. The fertilisation is external, development indirect through free-swimming larval forms.

Chordates are sharply distinguished from non-chordates by presence of notochord, dorsal tubular central nervous system and pharyngeal gills slits.

69 What is true about *Nereis*, scorpion, cockroach and silver fish? **[CBSE AIPMT 2007]**

(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

Ans. ***(c)***

Nereis living in burrows in sand or mud often with clams. Scorpion are abundant in deserts. Cockroach are found in warmth, dampness and plenty of organic food to devour. *Lepisma* (silver fish) residing in damp cool places and feeding on starch of starchy matter.

70 Two common characters found in centipede, cockroach and crab are **[CBSE AIPMT 2006]**

(a) compound eyes and anal cerci
(b) jointed legs and chitinous exoskeleton
(c) green gland and tracheae
(d) book lungs and antennae

Ans. ***(b)***

Crab, centipede and cockroach belong to phylum–Arthropoda. These have jointed appendages and chitinous exoskeleton.

71 From the following statements select the wrong one. **[CBSE AIPMT 2005]**

(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

Ans. ***(b)***

Prawn does not have two pairs of antennae instead it has one pair of antennae and one pair of antennules.

72 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? **[CBSE AIPMT 2004]**

(a) Insecta
(b) Myriapoda
(c) Crustacea
(d) Arachnida and Crustacea

Ans. ***(a)***

An arthropod body consists of head, thorax and abdomen, in some cases head and thorax may be fused to form cephalothorax. Class—Insecta have body divided into head, thorax and abdomen.

73 Which one of the following is correct matching pair of an animal and a certain phenomenon it exhibits? **[CBSE AIPMT 2003]**

(a) *Chameleon* — Mimicry
(b) *Taenia* — Polymorphism
(c) *Pheretima* — Sexual dimorphism
(d) *Musca* — Complete metamorphosis

Ans. ***(d)***

The young forms of housefly (maggot, pupas) are entirely different from the adult, the metamorphosis being complete (holometabolic metamorphosis). Metamorphosis is a process during which an animal undergoes a comparatively rapid changes from their larval stages to adult form.

74 What is common among silver fish, scorpion, crab and honeybee? **[CBSE AIPMT 1997]**

(a) Compound eyes
(b) Poison glands
(c) Jointed appendages
(d) Metamorphosis

Ans. ***(c)***

The main characteristics of phylum—Arthropoda are as follows

(i) Jointed appendages, present in some or all somite or segments, but often modified for specialised functions like walking, clinging, jumping, etc.
(ii) Bilateral symmetry.
(iii) Exoskeleton of cuticle.
(iv) Complex muscular system.
(v) Reduced coelom.
(vi) Complete digestive system.
(vii) Open circulatory system.
(viii) Respiration by body surface, gills, trachea (air tubes), or book lungs.
(ix) Paired excretory glands called coxal, antennal or maxillary glands present in some, homologous to metameric nephridial system of annelids, some with other excretory organs called Malpighian tubules.
(x) Nervous system with dorsal brain connected by a ring around the gullet to a double nerve chain of ventral ganglia.
(xi) Sexes usually separate.

75 A larval stage occurs in the life history of all members of the group **[CBSE AIPMT 1993]**

(a) frog, lizard and cockroach
(b) *Ascaris*, housefly and frog
(c) housefly, earthworm and mosquito
(d) butterfly, frog and mosquito

Ans. ***(d)***

Lizard, cockroach, *Ascaris,* earthworm shows direct development in their life cycle. Whereas, butterfly have catterpillar, frog have tadpole and mosquito have wriggler larvae in their life cycle.

76 Adult *Culex* and *Anopheles* can be distinguished with the help of **[CBSE AIPMT 1992]**

(a) mouth parts/colour
(b) sitting posture
(c) antennae/wings
(d) feeding habits

Ans. ***(b)***

The body of *Anopheles* mosquito makes an angle of 45° while sitting whereas the body of *Culex* mosquito lies parallel to the surface.

77 Male and female cockroaches can be distinguished externally through **[CBSE AIPMT 1991]**

(a) anal styles in male
(b) anal cerci in female
(c) anal style and antennae in females
(d) Both (b) and (c)

Ans. ***(a)***

Anal style, a pair of small, spine-like unjointed structures are present on sternite of 9th segment in males only.

78 Metamorphosis of insects is regulated through hormone **[CBSE AIPMT 1991]**

(a) pheromone (b) thyroxine
(c) ecdysone (d) All of these

Ans. ***(c)***

Metamorphosis is regulated by ecdysone hormone secreted by prothoracic glands. This hormone was isolated in a crystalline form in 1954 by **Butenandt** and **Karlson**.

79 An insect regarded as greatest mechanical carrier of diseases is **[CBSE AIPMT 1991]**

(a) *Pediculus* (b) *Cimex*
(c) *Musca* (d) *Xenopsylla*

Ans. ***(c)***

Musca (house fly) is the carrier of many disease as anthrax, trachoma, diarrhoea, tuberculosis, leprosy, gaugrene, plague, gonorrhoea, typhoid, cholera and dysentery.

80 Ecdysis is shedding of **[CBSE AIPMT 1990]**

(a) stratum corneum
(b) epidermis
(c) dermis
(d) stratum malpighi

Ans. ***(a)***

Ecdysis is the removal of outermost partially cornified layer of stratum corneum, which is then replaced by the cells formed by stratum germinativum.

81 Malpighian tubules are **[CBSE AIPMT 1990]**

(a) excretory organs of insects
(b) excretory organs of annelids
(c) respiratory organs of insects
(d) respiratory organs of annelids

Ans. ***(a)***

Malpighian tubules are the excretory organs of insects. These are unbranched tubules lying almost freely in haemocoel and open into alimentary canal. The main function of these tubules is to absorb nitrogenous waste product.

82 Kala-azar and oriental sore are spread by **[CBSE AIPMT 1990]**

(a) housefly (b) bed bug
(c) sand fly (d) fruit fly

Ans. ***(c)***

Kala-azar and oriental sore both the disease are caused by *Leishmania*. It is digenetic and intermediate host is sand fly belonging to the genus *Phlebotomus*.

Leishmania donovani causes **kala-azar** or **visceral leishmaniasis** which is also called **dum-dum fever**, infection occurs chiefly in spleen and liver, secondarily in bone marrow and intestinal villi.

L. tropica causes **oriental sore** or **cutaneous leishmaniasis** in man.

83 Silk thread is obtained from silk moth during **[CBSE AIPMT 1988]**

(a) pupal stage (b) larval stage
(c) nymph stage (d) adult stage

Ans. ***(a)***

Caterpillar feeds on mulberry leaves. Its salivary gland secretes liquid silk. Silk is obtained from (pupa, chrysalis). Ripe cocoons are treated with boiling water to kill the moth before hatching.

TOPIC 8
Phylum-Mullusca

84 Match the following. **[NEET 2021]**

	List-I		List-II
A.	*Physalia*	1.	Pearl oyster
B.	*Limulus*	2.	Portuguese Man of War
C.	*Ancylostoma*	3.	Living fossil
D.	*Pinctada*	4.	Hookworm

Choose the correct answer from the options given below.

	A	B	C	D
(a)	2	3	1	4
(b)	4	1	3	2
(c)	2	3	4	1
(d)	1	4	3	2

Ans. ***(c)***

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

- *Physalia* belongs to phylum-Coelenterata (Cnidaria) and is commonly known as Portuguese man-of-war.
- *Limulus* belongs to phylum-Arthropoda and is a living fossil and commonly termed as king crab.
- *Ancylostoma* belongs to phylum-Aschelminthes and is commonly referred to as hookworm.
- *Pinctada* belongs to phylum-Mollusca and is commonly called pearl oyster.

85 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? **[CBSE AIPMT 2012]**

Genus Name	Two characters		Phylum
(a) *Pila*	(i)	Body segmented	Mollusca
	(ii)	Mouth with Radula	
(b) *Asterias*	(i)	Spiny skinned	Echinoder-mata
	(ii)	Water vascular system	
(c) *Sycon*	(i)	Pore bearing	Porifera
	(ii)	Canal system	
(d) *Periplaneta*	(i)	Jointed appendages	Arthropo-da
	(ii)	Chitinous exoskeleton	

Ans. ***(a)***

Option (a) is incorrect because molluscs are bilaterally symmetrical, triploblastic, coelomate, soft bodied animals. Their soft body is covered by a calcareous shell and is unsegmented with a distinct head, muscular foot and visceral hump.

e.g. *Pila* (apple snail), *Sepia* (cuttle fish), *Pinctada* (pearl oyster), etc.

86 Which one of the following is a matching set of phylum and its three examples? **[CBSE AIPMT 2006]**

(a) Cnidaria — *Bonellia, Physalia, Aurelia*
(b) Platyhelminthes — *Planaria, Schistosoma, Enterobius*
(c) Mollusca — *Loligo, Teredo, Octopus*
(d) Porifera—*Spongilla, Euplectella, Pennatula*

Ans. ***(c)***

Loligo, Teredo and *Octopus* are the members of phylum—Mollusca.

Loligo is commonly called squid or sea arrow and is gregarious, fast swimmer in the open water of the sea and is carnivorous, feeding on crabs and fishes.

Octopus (devil fish) is found at the bottom of the sea. It is nocturnal and feeds on crabs, fishes and other molluscs.

Teredo or shipworm is a marine bivalve which has small anterior shell and long slender body with a small foot functioning as adhesive structure.

87 Closed circulatory system occurs in **[CBSE AIPMT 1994]**

(a) snail
(b) cockroach
(c) cuttle fish
(d) All of these

Ans. ***(c)***

Closed circulatory system occurs in cuttle fish, i.e. *Sepia*, cephalopods are the only molluscs with a closed circulatory system. They have two gill hearts (also known as bronchial hearts) that move blood through capillaries of the gill. A single systemic heart pumps the oxygenated blood through rest of the body.

88 Eye of the molluscan group that resembles vertebrate eye is **[CBSE AIPMT 1992]**

(a) Bivalvia (b) Gastropoda
(c) Pelecypoda (d) Cephalopoda

Ans. ***(d)***

Cephalopoda contains the most specialised molluscs including squids, *Octopus*, cuttle fish. In these animals well developed eyes are present which resembles vertebrate eyes.

89 A wood boring mollusc/shipworm is **[CBSE AIPMT 1988]**

(a) *Chiton*
(b) *Teredo*
(c) *Limax*
(d) *Patella*

Ans. ***(b)***

Teredo comes under class—**Pelecypoda** (bivalvia). It is commonly known as '**shipworm**'. It is destructive to wood in sea water.

TOPIC 9
Phylum-Echinodermata

90 Read the following statements. **[NEET 2021]**

I. Metagenesis is observed in helminths.
II. Echinoderms are triploblastic and coelomate animals.
III. Round worms have organ-system level of body organisation.
IV. Comb plates present in ctenophores help in digestion.
V. Water vascular system is characteristic of echinoderms.

Choose the correct answer from the options given below.

(a) III, IV and V are correct
(b) I, II and III are correct
(c) I, IV and V are correct
(d) II, III and V are correct

Ans. ***(d)***

Statements II, III and V are correct, while statements I and IV are incorrect.

Incorrect statement can be corrected as-

Comb plates are present in ctenophores which help in locomotion or swimming and not in digestion.

Metagenesis is the alternation of generations between sexual and asexual reproduction. In helminths metagenesis is not observed.

91 Match the following genera with their respective phylum **[NEET (Odisha) 2019]**

	Column I		Column II
1.	*Ophiura*	(i)	Mollusca
2.	*Physalia*	(ii)	Platyhelminthes
3.	*Pinctada*	(iii)	Echinodermata
4.	*Planaria*	(iv)	Coelenterata

Select the correct option from the following

	1	2	3	4
(a)	(iv)	(i)	(iii)	(ii)
(b)	(iii)	(iv)	(i)	(ii)
(c)	(i)	(iii)	(iv)	(ii)
(d)	(iii)	(iv)	(ii)	(i)

Ans. ***(b)***

The correct matches are

1.	*Ophiura* (Brittle star)	(iii) Echinodermata
2.	*Physalia* (Portuguese man of war)	(iv) Coelenterata
3.	*Pinctada* (Pearl oyester)	(ii) Mollusca
4.	*Planaria* (Flatworm)	(ii) Platyhelminthes

92 The animal with bilateral symmetry in young stage and radial pentamerous symmetry in the adult stage belong to the phylum **[CBSE AIPMT 2004]**

(a) Annelida (b) Mollusca
(c) Cnidaria (d) Echinodermata

Ans. ***(d)***

Echinoderms are triploblastic animals with organ system level of organisation. Larval forms possess bilateral symmetry while adults have radial symmetry.

93 Radial symmetry is usually associated with **[CBSE AIPMT 1996]**

(a) aquatic mode of life
(b) lower grade of organisation
(c) creeping mode of locomotion
(d) sedentary mode of life

Ans. ***(b)***

In radial symmetry body is in the form of flat or tall cylinder and can be divided into similar halves by more than two planes passing through one main axis. It is found in some sponges, hydras, jellyfish, sea urchin, etc.

94 The organisms attached to the substratum generally, possess **[CBSE AIPMT 1995]**

(a) radial symmetry
(b) one single opening of digestive canal
(c) asymmetrical body
(d) cilia on surface to create water current

Ans. ***(a)***

The organisms attached to the substratum, generally possess radial symmetry.

95 Radial symmetry is often exhibited by animals having **[CBSE AIPMT 1994]**

(a) one opening of alimentary canal
(b) aquatic mode of living
(c) benthos/sedentary
(d) ciliary mode of feeding

Ans. ***(b)***

Radial animals are usually sessile, freely floating or weakly swimming.

96 Tube feet occur in **[CBSE AIPMT 1994]**

(a) cockroach (b) starfish
(c) cuttle fish (d) cat fish

Ans. ***(b)***

In starfish locomotion takes place by external **tube feet**, connected with water vascular system.

97 Aristotle's lantern occurs in class **[CBSE AIPMT 1992]**

(a) Echinoidea (b) Asteroidea
(c) Holothuroidea (d) Ophiuroidea

Ans. ***(a)***

A biting or masticatory apparatus or **Aristotle's lantern'** is present in the members of class— **Echinoidea.**

98 Star fish belongs to **[CBSE AIPMT 1992]**

(a) Asteriodea (b) Ophiuroidea
(c) Holothuroidea (d) Crinoidea

Ans. ***(a)***

Starfish belongs to class—Asteroidea.

99 Which one occurs in Echinodermata? **[CBSE AIPMT 1991]**

(a) Bilateral symmetry
(b) Radial symmetry
(c) Porous body
(d) Soft skin

Ans. ***(b)***

Echinoderms are triploblastic and radially symmetrical but their larvae are bilaterally symmetrical.

TOPIC 10
Phylum-Chordata

100 All vertebrates are chordates, but all chordates are not vertebrates, why? **[NEET (Oct.) 2020]**

(a) Notochord is replaced by vertebral column in adult of some chordates
(b) Ventral hollow nerve cord remains throughout life in some chordates
(c) All chordates possess vertebral column
(d) All chordates possess notochord throughout their life

Ans. ***(a)***

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. Thus, all vertebrates are chordates but, all chordates are not vertebrates.

101 Which of the following statements are true for the phylum–Chordata? **[NEET (Sep.) 2020]**

I. In Urochordata notochord extends from head to tail and it is present throughout their life.
II. In Vertebrata, notochord is present during the embryonic period only.
III. Central nervous system is dorsal and hollow.
IV. Chordata is divided into 3 subphyla, Hemichordata, Tunicata and Cephalochordata.

(a) III and I
(b) I and II
(c) II and III
(d) IV and III

Ans. ***(c)***

Statement II and III are correct. Statement I and IV are incorrect and can be corrected as

In Urochordata, notochord is present only in larval tail, while in Cephalochordata, it extend from head to tail region and is persistent throughout their life.

Phylum–Chordata is divided into three subphyla i.e. Urochordata or Tunicata, Cephalochordata and Vertebrata.

102 Consider the following features. **[NEET (National) 2019]**

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 Mollusca
(b) Arthropoda, Mollusca and Chordata
(c) Annelida, Mollusca and Chordata
(d) Annelida, Arthropoda and Chordata

Ans. ***(d)***

All the three animal groups namely Annelida, Arthropoda and Chordata possess organ system level of organisation, bilateral symmetry and true coelom with segmented body. Molluscans are also bilaterally symmetrical and show organ system grade of organisation but they do not possess segmented body.

103 An important characteristic that hemichordates share with chordates is **[NEET 2017]**

(a) absence of notochord
(b) ventral tubular nerve cord
(c) pharynx with gill slits
(d) pharynx without gill slits

Ans. ***(c)***

The important characteristic that hemichordates share with chordates is pharynx with gillslits. These gillslits are narrow openings in the pharynx. The position of these pharyngeal gillslits is lateral in chordates, while dorsal in hemichordates.

104 Choose the correct statement. **[NEET 2016, Phase II]**

(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

Ans. ***(b)***

Cyclostomata is a class belonging to section 1-Agnatha of subphylum-Vertebrata.

It is a paraphytelic superclass of jawless fishes. They lack paired fins too. Thus, option (b) is correct.

105 In which of the following notochord is present in embryonic stage? **[CBSE AIPMT 2002]**

(a) All chordates (b) Some chordates
(c) Vertebrates (d) Non-chordates

Ans. ***(a)***

Notochord is the primary axial supportive structure present in all chordate embryos as well as in many adults. In a vast majority, it is replaced by vertical column in adults. Vertebrates come under the category of chordate. Non-chordates do not contain notochord.

106 Besides Annelida and Arthropoda, the metamerism is exhibited by **[CBSE AIPMT 1995]**

(a) Cestoda
(b) Chordata
(c) Mollusca
(d) Acanthocephala

Ans. ***(b)***

Chordates also exhibit metameric segmentation. This is because of repetition of homologous structures along the length of an animal.

107 A common characteristic of all vertebrates is **[CBSE AIPMT 1994]**

(a) presence of skull
(b) division of body into head, neck, trunk and tail
(c) presence of two pairs of functional appendages
(d) body is covered with an exoskeleton

Ans. ***(a)***

Vertebrates have well developed cranium (skull) hence, they are also called as Craniata.

108 All chordates possess **[CBSE AIPMT 1994]**

(a) exoskeleton
(b) limbs
(c) skull
(d) axial skeletal rod of notochord

Ans. ***(d)***

Phylum—Chordata was created by **Balfour** in 1880. This refers to the presence of a shoft, supporting rod-like structure along the back called **'notochord'**.

109 All vertebrates possess **[CBSE AIPMT 1993]**

(a) renal portal system
(b) dorsal, hollow, central nervous system
(c) four chambered ventral heart
(d) pharyngeal gill slits

Ans. ***(b)***

Dorsal, hollow, central nervous system is present in all vertebrates.

110 Penguin occurs in **[CBSE AIPMT 1990]**

(a) Australia
(b) Antarctica
(c) Africa
(d) America

Ans. ***(b)***

Penguins are found in Antarctica (South pole). They have paddle like wings and cannot fly. Penguins are marine and lay eggs in ice.

111 A chordate character is **[CBSE AIPMT 1989]**

(a) gills
(b) spiracles
(c) post-anal tail
(d) chitinous exoskeleton

Ans. ***(c)***

Presence of post-anal tail is one of the characters of chordate.

112 *Necturus* is **[CBSE AIPMT 1988]**

(a) hell bender
(b) congo eel
(c) mud puppy
(d) blind worm

Ans. ***(c)***

Common name of *Necturus* is mud puppy. This comes under order-Urodela.

113 *Typhlos* is **[CBSE AIPMT 1988]**

(a) sea snake (b) glass snake
(c) blind snake (d) grass snake

Ans. ***(c)***

Typhlos is blind snake and it is non-poisonous.

TOPIC 11
Super-Class-Pisces

114 Match the following columns and select the correct option from the codes given below. **[NEET (Oct.) 2020]**

	Column I		Column II
A.	*Aptenodytes*	1.	Flying fox
B.	*Pteropus*	2.	Angel fish
C.	*Pterophyllum*	3.	Lamprey
D.	*Petromyzon*	4.	Penguin

Codes

	A	B	C	D
(a)	3	4	2	1
(b)	3	4	1	2
(c)	4	1	2	3
(d)	2	1	4	3

Ans. ***(c)***

The option (c) is the correct match which is as follows

Aptenodytes is penguin

Pteropus is flying fox

Pterophyllum is angel fish

Petromyzon is lamprey

115 Match the following columns and select the correct option. **[NEET (Sep.) 2020]**

	Column I		Column II
A.	6-15 pairs of gill slits	1.	*Trygon*
B.	Heterocercal caudal fin	2.	Cyclostomes
C.	Air bladder	3.	Chondrichthyes
D.	Poison sting	4.	Osteichthyes

	A	B	C	D
(a)	3	4	1	2
(b)	4	2	3	1
(c)	1	4	3	2
(d)	2	3	4	1

Ans. ***(d)***

Option (d) is correct. It can be explained as follows

Cyclostomes have an elongated body bearing 6-15 pairs of gill slits for respiration. Air bladder is present in bony fishes belonging to class-Osteichthyes which regulates buoyancy.

Trygon, a cartilaginous fish, possesses poison sting.

Heterocercal caudal fin is present in members of class-Chondrichthyes.

116 Which of the following characteristic features always holds true for the corresponding group of animals? **[NEET 2016, Phase I]**

(a)	Viviparous	Mammalia
(b)	Possess a mouth with an upper and a lower jaw	Chordata
(c)	3-chambered heart with one incompletely divided ventricle	Reptilia
(d)	Cartilaginous – endoskeleton	Chondrichthyes

Ans. ***(d)***

Reptiles have 3-chambered heart except crocodiles. Mammals are viviparous except prototherian mammals; chordates have jaws except protochordates and cyclostomes.

117 A jawless fish, which lays eggs in fresh water and whose ammocoetes larvae after metamorphosis return to the ocean is **[CBSE AIPMT 2015]**

(a) *Eptatretus* (b) *Myxine*
(c) *Neomyxine* (d) *Petromyzon*

Ans. ***(d)***

Petromyzon (the lamprey) belongs to the section Agnatha of the subphylum—Vertebrata. They have long, greenish brown, cylindrical body with smooth scaleless, slimy skin, jawless mouth, etc. They lay eggs in freshwater, but their ammocoete larvae (lower) after metamorphosis return to the ocean.

118 A marine cartilaginous fish that can produce electric current is **[CBSE AIPMT 2014]**

(a) *Pristis* (b) *Torpedo*
(c) *Trygon* (d) *Scoliodon*

Ans. ***(b)***

Torpedo is a marine cartilaginous fish which produces 8-220 volt electric charge (current) depending on species.

Their electric organs are modified lateral muscle plates innervated by cranial nerves.

Trygon (sting ray) resembles electric ray in many aspects but is devoid of electricity discharging (or producing) organs.

Scoliodon (dog fish) is known for its great sense of smell.

Pristis or common saw fish (also known as carpenters shark) is characterised by a long, narrow, flattened rostrum lined with sharp transverse teeth to resembles a saw.

119 Match the name of the animal (column I) with one characteristics (column II) and the phylum/class (column III) to which it belongs **[NEET 2013]**

	Column I	Column II	Column III
(a)	*Petromyzon*	Ectoparasite	Cyclostomata
(b)	*Ichthyophis*	Terrestrial	Reptilia
(c)	*Limulus*	Body covered by chitinous exoskeleton	Pisces
(d)	*Adamsia*	Radially symmetrical	Porifera

Ans. ***(a)***

Option (a) is correctly matched as *Petromyzon* (lamprey) is an ectoparasite on fishes, which belongs to Cyclostomata. Other can be corrected as *Ichthyophis* is a limbless amphibian. *Limulus* (king crab) is a living fossil, which belongs to Arthropoda. *Adamasia* having polyp body form is a coelenterate.

120 Which one of the following groups of animals is correctly matched with its one characteristic feature without even a single exception? **[CBSE AIPMT 2011]**

(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

Ans. ***(b)***

The members of class-Chondrichthyes are marine animals with streamlined body and have cartilaginous endoskeleton.

Chordata These possessing a notochord, a hollow dorsal nerve cord, pharyngeal slits, an endostyle and a post and tail for atleast some period of their life cycle.

Mammalia These are a clade of endothermic amniotes distinguished from reptiles and birds by the possession of hair, three middle ear bones, mammary glands, and a neocortex.

Reptile These are an evolutionary clade of animals, comprising today's turtles, crocodilians, snakes, lizards and tuatara, their extinct relatives and some of the extinct ancestors of mammals.

121 What will you look for to identify the sex of the following? **[CBSE AIPMT 2011]**

(a) Male frog – A copulatory pad on the first digit of the hindlimb
(b) Female cockroach – Anal cerci
(c) Male shark – Claspers borne on pelvic fins
(d) Female *Ascaris* – Sharply curved posterior end

Ans. ***(c)***

A clasper is a male anatomical structure found in some groups of animals and used in mating. Male cartilaginous fish like shark have claspers formed from the posterior portion of their pelvic fin which serves as intermittent organs used to channel semen into the female's cloaca during mating.

122 Which one of the following pairs of animal comprises 'jawless fishes'? **[CBSE AIPMT 2009]**

(a) Lampreys and eels
(b) Mackerals and rohu
(c) Lampreys and hag fishes
(d) Guppies and hag fishes

Ans. ***(c)***

Lampreys and *Myxine* (hag fish) belong to the class—Cyclostomata, group-Agnatha of Vertebrata. Agnatha have mouth without jaws. In these, mouth is ventral, suctorial and circular.

123 Which one of the following is an exotic Indian fish? **[CBSE AIPMT 1996]**

(a) *Catla catla*
(b) *Heteropneustes fossilis*
(c) *Cyprinus caprio*
(d) *Labeo rohita*

Ans. ***(c)***

Cyprinus caprio is the exotic breed. It is also known as common carp. It is a widespread fresh water fish of eutrophic water lakes and rivers in Europe and Asia.

124 Fish which can be used in biological control of mosquitoes/larvicidal fish is **[CBSE AIPMT 1989, 99, 2001]**

(a) eel
(b) carp
(c) cat fish
d) *Gambusia*

Ans. ***(d)***

Gambusia (mosquito fish) eats the larvae of mosquito, so it is used in **biological control** of mosquito.

TOPIC 12
Class-Amphibia

125 In which one of the following the genus name, its two characters and its class/phylum are correctly matched? **[CBSE AIPMT 2011]**

	Genus	Two characters		Class/ phylum
(a)	*Salamandra*	(i)	A tympanum represents ear	Amphibia
		(ii)	Fertilisation is external	
(b)	*Pteropus*	(i)	Skin possesses hair	Mammalia
		(ii)	Oviparous	
(c)	*Aurelia*	(i)	Cnidoblast	Coelenterata
		(ii)	Organ level of organisation	
(d)	*Ascaris*	(i)	Body segmented	Annelida
		(ii)	Males and females distinct	

Ans. ***(a)***

Salamandra (salamander) is a member of class-Amphibia. It has a tympanum representing the ear and fertilisation is external.

126 The presence of gills in the tadpole of frog indicates that **[CBSE AIPMT 2004]**

(a) fishes were amphibious in the past
(b) fishes evolved from frog like ancestors
(c) frogs will have gills in future
(d) frogs evolved from gilled ancestors

Ans. ***(d)***

According to **biogenetic law of Ernst Haeckel** (1860) **Ontogeny repeats Phylogeny**. Ontogeny is the life history of an organism, while phylogeny is the evolutionary history of the race of that organism. In other words we can say 'an organism repeats its ancestral history during its development'. Hence, resemblance of Amphibia to fish is seen in most systems of the body, both are cold-blooded, both respire by gills (as tadpole of frog), both usually lay eggs in water leading to the conclusion that amphibians have originated from fishes.

127 Mucus helps frog in forming **[CBSE AIPMT 1993]**

(a) thick skin (b) dry skin
(c) smooth skin (d) moist skin

Ans. ***(d)***

Mucus helps frog in keeping the skin moist that helps in cutaneous respiration when the frog is in hibernation or estivation.

128 Bull frog of India is **[CBSE AIPMT 1992]**

(a) *Rana tigrina*
(b) *R. sylvatica*
(c) *R. ecutesbeiana*
(d) *R. esculenta*

Ans. ***(a)***

Indian bull frog is *Rana tigrina.*

129 Skin is a respiratory organ in **[CBSE AIPMT 1990]**

(a) lizards
(b) birds
(c) primitive mammals
(d) frog

Ans. ***(d)***

Frog is an amphibian and its skin is well adapted or in other words acts as a secondary respiratory organ when it is in water.

130 Which is not a true amphibian animal? **[CBSE AIPMT 1988]**

(a) Salamander
(b) Toad
(c) Tortoise
(d) Frog

Ans. ***(c)***

Tortoise is a reptile of sub-class—**Anapsida** and order—Chetomia or Testudinata.

131 Fire bellied toad is **[CBSE AIPMT 1988]**

(a) *Amphiuma*
(b) *Bombinator*
(c) *Necturus*
(d) *Salamandra*

Ans. ***(b)***

Fire bellied toad is *Bombinator* and this is an Anuran.

TOPIC 13
Class-Reptilia

132 Which of the following pairs are correctly matched? **[CBSE AIPMT 2007]**

Animals — Morphological features
(i) Crocodile — Four-chambered heart
(ii) Sea urchin — Parapodia
(iii) Obelia — Metagenesis
(iv) Lemur — Thecodont

(a) (i), (iii) and (iv)
(b) (ii), (iii) and (iv)
(c) Only (i) and (iv)
(d) Only (i) and (ii)

Ans. ***(a)***

Exceptionally, crocodile has four-chambered heart. In *Obelia* the alternation of generation is called metagenesis in which an asexual polypoid generation appears to alternate regularly with a sexual medusoid generation.

Thecodont dentition is found in mammals.

133 In which of the following animal, post-anal tail is found? **[CBSE AIPMT 2001]**

(a) Earthworm
(b) Lower invertebrate
(c) Scorpion
(d) Snake

Ans. ***(d)***

In snakes, post-anal tail is found. Snakes belong to class—Reptilia. Jurassic period (Mesozoic era) is known as Golden age of reptiles. The study of snake is known as serpentology.

TOPIC 14
Class-Aves

134 Which one of the following organisms bears hollow and pneumatic long bones? **[NEET 2021]**

(a) *Neophron*
(b) *Hemidactylus*
(c) *Macropus*
(d) *Ornithorhynchus*

Ans. ***(a)***

Pneumatic bones are hollow bones found in birds, which enables them to fly. *Neophron* is a bird.

Other options are incorrect because

- *Hemidactylus* is a reptile.
- *Macropus* is a mammal.
- *Ornithorhynchus* is a mammal.

135 Match the following (Columns) group of organisms with their respective distinctive characteristics and select the correct option from the codes given belows **[NEET (Oct.) 2020]**

Column-I (Organisms)	Column-II (Characteristics)
A. Platyhelminthes	1. Cylindrical body with no segmentation
B. Echinoderms	2. Warm blooded animals with direct development
C. Hemichordates	3. Bilateral symmetry with incomplete digestive system
D. Aves	4. Radial symmetry with indirect development

Codes

	A	B	C	D
(a)	3	4	1	2
(b)	2	3	4	1
(c)	4	1	2	3
(d)	1	2	3	4

Ans. ***(a)***

The option (a) is the correct match which is as follows

Platyhelminthes are bilaterally symmetrical with incomplete digestive system, e.g. *Taenia*.

Echinoderms are radially symmetrical with indirect development, e.g. star fish, sea urchin etc.

- Hemichordates are cylindrical bodied animal with no segmentation, e.g. *Balanoglossus*.Aves are warm-blooded animals with direct development like pigeon.

136 Which one of the following in birds, indicates their reptilian ancestry? **[CBSE AIPMT 2008]**

(a) Scales on their hindlimbs
(b) Four chambered heart
(c) Two special chambers crop and gizzard in their digestive tract
(d) Eggs with a calcareous shell

Ans. ***(d)***

Nearly a century ago TH Huxley called birds 'glorified reptiles' thereby meaning that birds have evolved from some reptilian ancestor. Both birds and reptiles lay the same type of eggs, which are deposited outside water. Eggs are large and telolecithal. The ovum is surrounded by albumen, an egg membrane and a thick hard calcareous shell, which are all secreted by special glands located in the walls of oviduct.

Like mammals birds also have complete four chambered heart with double circulation, in which there is no mixing of pure and impure bloods. Whereas, the ventricle is imperfectly divided in reptiles, resulting in partial mixing of blood.

137 Which of the following is not found in birds? **[CBSE AIPMT 1999]**

(a) Hind limb (b) Pectoral girdle
(c) Pelvic girdle (d) Fore limb

Ans. ***(d)***

Fore limbs of birds are modified into wings.

138 The long bones are hollow and connected by air passage. They are the characteristics of **[CBSE AIPMT 1998]**

(a) Aves
(b) mammals
(c) Reptilia
(d) land vertebrates

Ans. ***(a)***

The bones of birds are pneumatic, (i.e. they have air cavities) to reduce weight which help them in flying.

139 Feet of kingfisher are modified for **[CBSE AIPMT 1988]**

(a) wading (b) perching
(c) running (d) catching

Ans. ***(a)***

Kingfisher is fish-eating bird and its feet are modified for wading. It is grouped into order–Coraciifermers, which comes in family- Alcedinidae.

140 Bird vertebrae are **[CBSE AIPMT 1988]**

(a) acoelous (b) heterocoelous
(c) amphicoelous (d) procoelous

Ans. ***(b)***

Bird vertebrae are heterocoelous or saddle shaped.

141 Pneumatic bones are expected to be found in **[CBSE AIPMT 1996]**

(a) pigeon (b) house lizard
(c) frog's tadpole (d) flying fish

Ans. ***(a)***

In birds like pigeon bones are pneumatic or hollow and have no marrow, thus helps in reducing the body weight.

142 The flightless bird cassowary is found in **[CBSE AIPMT 1996]**

(a) Mauritius (b) Australia
(c) New Zealand (d) Indonesia

Ans. ***(b)***

Cassowary (*Casuarius*) is found in Australia and New Guinea.

143 What is common between ostrich, penguin and kiwi? **[CBSE AIPMT 1993]**

(a) Running birds (b) Migratory birds
(c) Flightless birds (d) Four toed birds

Ans. ***(c)***

Ostrich (*Struthio*), penguin (*Aptenodytes*) and kiwi (*Apteryx*) all are flightless birds.

144 Sound box of birds is called **[CBSE AIPMT 1992]**

(a) pygostyle (b) larynx
(c) syrinx (d) synsacrum

Ans. ***(c)***

Sound box of birds is called syrinx, this produces voice. It lies at or near junction of trachea and bronchi.

145 Flight muscles of bird are attached to **[CBSE AIPMT 1989]**

(a) clavicle (b) keel of sternum
(c) scapula (d) coracoid

Ans. ***(b)***

Sternum of birds is large, usually with a vertical, midneutral **keel** which provides attachment of flight muscles.

146 Wish bone of birds is formed from **[CBSE AIPMT 1989]**

(a) pelvic girdle
(b) skull
(c) hindlimbs
(d) pectoral girdle/clavicles

Ans. ***(d)***

Both clavicles and a single interclavicle fused to form a V-shaped bone called **furcula** or **wish bone** or **merry-thought bone.**

147 Both male and female pigeons secrete milk, through **[CBSE AIPMT 1988]**

(a) salivary glands
(b) modified sweat glands
(c) crop
(d) gizzard

Ans. ***(c)***

Both male and female pigeon secrete milk through crop during breeding season.

TOPIC 15
Class-Mammalia

148 Which among these is the correct combination of aquatic mammals? **[NEET 2017]**

(a) Seals, Dolphins, Sharks
(b) Dolphins, Seals, *Trygon*
(c) Whales, Dolphins, Seals
(d) *Trygon*, Whales, Seals

Ans. ***(c)***

Among the given options, option (c) contains all aquatic mammals. Whales are inhabitants of the open sea, while seal (*Phoca*) is a marine carnivore. Dolphins are found in rivers. *Trygon* and sharks are fishes, which belong to chondrichthyes class of superclass-Pisces.

149 Which one of the following characteristics is not shared by birds and mammals? **[NEET 2016, Phase I]**

(a) Breathing using lungs
(b) Viviparity
(c) Warm blooded nature
(d) Ossified endoskeleton

Ans. ***(b)***

Mammals are viviparous while birds are oviparous. Viviparous means giving birth to offspring that develops within the mother's body. Oviparous means producing eggs that hatch outside the body of mother.

150 Compared to those of humans, the erythrocytes in frog are **[CBSE AIPMT 2012]**

(a) without nucleus but with haemoglobin
(b) nucleated and with haemoglobin
(c) very much smaller and fewer
(d) nucleated and without haemoglobin

Ans. ***(b)***

RBCs or erythrocytes of frog are oval, disc–like biconvex, have centrally placed nucleus and with haemoglobin. Usually in mammals (including human), RBCs are circular and non-nucleated except those of family-Camilladae (camels, llamas, etc), which have nucleated RBCs.

151 What is common between parrot, platypus and kangaroo? **[CBSE AIPMT 2007]**

(a) Homeothermy
(b) Toothless jaws
(c) Functional post-anal tail
(d) Oviparity

Ans. ***(a)***

Parrot (birds), platypus and kangaroo (both mammal) are homeothermic animals.

152 In which one of the following sets of animals do all the four give birth to young ones? **[CBSE AIPMT 2006]**

(a) Lion, bat, whale, ostrich
(b) Platypus, penguin, bat, hippopotamus
(c) Shrew, bat, cat, kiwi
(d) Kangaroo, hedgehog, dolphin, loris

Ans. ***(d)***

Kangaroo, hedgehog, dolphin and loris are all mammals. These give birth to young ones.

153 Which one of the following characters is not typical of the class-Mammalia? **[CBSE AIPMT 2005]**

(a) Seven cervical vertebrae
(b) Thecodont dentition
(c) Ten pairs of cranial nerves
(d) Alveolar lungs

Ans. ***(c)***

Ten pairs of cranial nerves are not common in mammals but common in frog. In mammals 12 pairs of cranial nerves are found.

154 A terrestrial animal must be able to **[CBSE AIPMT 2004]**

(a) excrete large amounts of water in urine
(b) conserve water
(c) actively pump salts out through the skin
(d) excrete large amounts of salts in urine

Ans. ***(b)***

Since, terrestrial animals do not have automatic access to either fresh or salt water, they must regulate water content in other ways, balancing off gains and losses.

155 Given below are four matchings of an animal and its kind of respiratory organ **[CBSE AIPMT 2003]**

(i) silver fish — trachea
(ii) scorpion — book lung
(iii) sea squirt — pharyngeal gills
(iv) dolphin — skin

The correct matchings are

(a) (ii) and (iv) (b) (iii) and (iv)
(c) (i) and (iv) (d) (i), (ii) and (iii)

Ans. ***(d)***

Dolphins are mammals which respire by lungs, which are situated next to the heart in the thorax cavity.

156 Trachea of cockroach and mammal are similar in having **[CBSE AIPMT 1993]**

(a) paired nature
(b) non-collapsible walls
(c) ciliated inner lining
(d) origin from head

Ans. ***(b)***

The trachea of cockroach and mammals is lined with spiral thickening of cuticle called intina which prevents the tracheal tubes from collapsing.

157 What is common in whale, bat and rat? **[CBSE AIPMT 1993, 2000, 04]**

(a) Absence of neck
(b) Muscular diaphragm between thorax and abdomen
(c) Extra-abdominal testes to avoid high temperature of body
(d) Presence of external ears

Ans. ***(b)***

The presence of diaphragm is a characteristic feature of mammals, diaphragm acts as a separater between thorax and abdomen. Whale, bat and rat all are mammals and have diaphragm.

158 Gorilla, chimpanzee, monkeys and human belong to the same **[CBSE AIPMT 1993]**

(a) species
(b) genus
(c) family
(d) order

Ans. ***(d)***

Gorilla, chimpanzee, monkeys and humans these all belong to same order—Primata of class—Mammalia.

159 The cervical vertebrae in humans is **[CBSE AIPMT 1993]**

(a) same as in whale
(b) more than that in rabbit
(c) double than that of horse
(d) less than that in giraffe

Ans. ***(a)***

The number of cervical vertebrae is constant, i.e. 7 in number in all mammals except sea cow and sloth. So, the cervical vertebrae in humans is same as in whale.

160 An egg laying mammal is **[CBSE AIPMT 1992, 2000]**

(a) kangaroo (b) platypus
(c) koala (d) whale

Ans. ***(b)***

Egg laying mammals are primitive mammals classified under sub-class-Prototheria. These are oviparous, reptile-like mammals, confined to Australian region.

Ornithorhynchus, (duck billed platypus) is found is Australia and New Zealand is an egg laying mammal.

161 Kidney of adult rabbit is **[CBSE AIPMT 1991]**

(a) pronephros
(b) metanephros
(c) mesonephros
(d) opisthonephros

Ans. ***(b)***

Kidney of adult rabbit is metanephros which is divided into cortex and medulla and its duct is useless. This is most advanced type of kidney found in man and rabbit.

162 Eutherians are characterised by **[CBSE AIPMT 1989]**

(a) hairy skin
(b) true placentation
(c) ovoviviparity (d) glandular skin

Ans. ***(b)***

Infraclass—Eutheria includes viviparous placental mammals. They give birth to young ones, which gets nourishment through placenta inside the body of its mother.

163 Hair occur in all mammals except those of **[CBSE AIPMT 1988]**

(a) Rodentia (b) Chiroptera
(c) Primata (d) Cetacea

Ans. ***(d)***

Order—Cetacea of mammals consists of aquatic mammals in which hairs are present only on snout, e.g. porpoise, killer whale, dolphin, blue whale, sperm whale, etc.