Chapter 10

Animal Kingdom
(General Accounts & Non-Chordates)

Solutions

SECTION - A

Objective Type Questions

(Metazoa, Basis of Classification)

1. Which of the following groups of animals have closed circulatory system?

   (1) Cockroach, locust, molluscs

   (2) Non-cephalopod molluscs, cockroach

   (3) Cephalopod molluscs and earthworm

   (4) Hemichordates and non-cephalopod molluscs

Sol. Answer (3)

In closed circulatory system, blood circulates through a series of blood vessels of varying diameter i.e. arteries, veins and capillaries, without coming in direct contact with body cells. Closed circulatory system is found in Annelids, cephalopod molluscs, chordates.

Earthworm belongs to phylum annelida.

2. Which of the following groups of animals has tube in tube body plan?

   (1) Sponges (2) Coelenterates

   (3) Aschelminthes (4) Platyhelminthes

Sol. Answer (3)

Sponges	–	Diploblastic, assymetric or radially symmetric
Coelenterates (*cnidaria*)	–	Diploblastic, radially symmetric
Aschelminthes	–	Triploblastic, bilaterally symmetric
Ctenophores	–	Diploblastic, radially symmetric

3. Coelom derived from blastocoel is known as

   (1) Pseudocoelom (2) Schizocoel

   (3) Haemocoel (4) Enterocoelom

Sol. Answer (1)

In pseudocoleomate, body cavity is not completely lined by mesoderm. There are scattered pouches of mesoderm between ectoderm and endoderm.

4. Schizocoelomates and enterocoelomates are

(1) Acoelomates (2) True coelomates

(3) Vertebrates (4) Echinoderms only

Sol. Answer (2)

Eucoelomates are true coelomates, where body cavity is lined by mesoderm on both sides.

Based on mode of formation of coelom, eucoelomates are of two types:

a. **Schizocoelom :** Body cavity develops by splitting of mesoderm. It is found in annelids and arthropods.

b. **Enterocoelom :** Mesoderm arises from wall of embryonic gut or enteron as hollow outgrowths. It occurs in echinoderms and chordates.

5. Which one of the following can't be taken as the character of non-chordates?

(1) Absence of notochord

(2) Heart is ventral

(3) Gill slits are absent

(4) Chitinous exoskeleton present

Sol. Answer (2)

Characteristic of chordates are :

a. Absence of notochord – in non-chordates, notochord is absent

b. Heart is present in dorsal in position in non-chordates

c. Gills slits are absent

d. In some non chordate e.g. arthropod, chitin exoskeleton is present

Heart is dorsal, not ventral in non chordates.

6. Column II below consists of brief descriptions of organisms in column I. Which of the following is **incorrect** match between column I and column II?

Column I		**Column II**
(1) Millipede	–	A terrestrial organism with two pairs of jointed appendages attached to each of its many body segments and respires through trachea.
(2) *Nereis*	–	Numerous setae on lateral appendages called parapodia.
(3) *Taenia solium*	–	Body is covered with cuticle, alimentary canal absent.
(4) Ctenophores	–	Radially symmetrical, devoid of cnidoblasts, polyp stage present in their life cycle.

Sol. Answer (4)

Option (4) is in correctly matched as correct match will be

(1) Millipede	–	Terrestrial organism with two pairs of appendages attached to each of its many body segments and respire through trachea	–	Class diplopoda phylum arthropoda
(2) *Nereis*	–	Numerous setae on lateral appendages called parapodia	–	Class polychaeta phylum annelida
(3) *Taenia solium*	–	Body is covered with cuticle alimentary canal is absent	–	Class cestoda phylum platyhelminthes
(4) Ctenophores	–	Radially symmetric animals, devoid of cnidoblast, no polyp like stage is present in their life cycle	–	Phylum ctenophora

7. The appropriate sequence of numbered animals from column II matching with the sequence of larvae in column I is

	Column I		**Column II**
a.	Planula	(i)	Mussell
b.	Glochidium	(ii)	Crab
c.	Nauplius	(iii)	*Obelia*
d.	Cysticercus	(iv)	*Nereis*
		(v)	*Taenia solium*

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

Sol. Answer (3)

Appropriate match is

a.	Planula larva	–	*Obelia* (cnidaria)
b.	Glochidium larva	–	Mussel (class pelecypoda) (phylum mollusca)
c.	Nauplius larva	–	Crab (class crustacea) (phylum arthropoda)
d.	Cysticercus larva	–	*Taenia solium* (class cestoda) (phylum platyhelminthes)

8. Which of the following statement is **incorrect**?

(1) Receptors for taste are located in the feet of insects

(2) The development of echinoderms includes a free-swimming dipleura larva

(3) Flame cells in flatworms are for excretion and osmoregulation

(4) Alternation of asexual and sexual phases in life cycle of *Hydra* is called metagenesis

Sol. Answer (4)

Correct statement would be -

There is no alternation of asexual and sexual phases called metagenesis in life cycle of *Hydra*.

(Classification of Animals)

[Phylum : Porifera]

9. Canal system of porifera is **not** connected with

(1) Food gathering (2) Respiratory gas exchange

(3) Removal of waste (4) Locomotion

Sol. Answer (4)

Poriferans are sessile organisms and remain attached to substratum. Poriferans do not show locomotion. In sponges canal system performs function of food gathering, gas exchange during respiration, removal of waste product. Canal system does not help in locomotion.

10. Statement-1 : Choanocytes are characteristic cells of porifera.

Statement-2 : In sycon type canal system, both radial and incurrent canals are lined by choanocytes.

(1) Both statement (1) and (2) are correct

(2) Statement (1) is correct and (2) is incorrect

(3) Statement (1) is incorrect and (2) is correct

(4) Both statements (1) and (2) are incorrect

Sol. Answer (2)

11. Which of the following statements is **without** exception for sponges?

(1) They all have calcareous spicules
(2) They have high regenerative power
(3) They are found only in marine water
(4) They are all radially symmetric

Sol. Answer (2)

Sponge may undergo fragmentation due to mechanical injury or decay of older parts. Each fragment develop into complete sponge. Sponges possess high degree of regeneration. Even the cells of crushed sponge can regroup to form sponge.

[Phylum : Coelenterata, Ctenophora]

12. In *Hydra*, waste materials after digestion and nitrogenous waste materials are removed from

(1) Mouth only
(2) Body wall only
(3) Mouth and body wall respectively
(4) Mouth and tentacles respectively

Sol. Answer (3)

Cnidarians are ammonotelic and have incomplete digestive system, having single opening for entry and exist of substances. Excretion in cnidarian occurs through mouth and through body surface via diffusion.

13. Which of the following cells are present only in the epidermis of *Hydra?*

(A) Interstitial cells
(B) Cnidoblasts
(C) Sensory cells
(D) Germ cells

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

Sol. Answer (3)

Interstitial cells – Totipotent cells which give rise to all different cells of body in epidermis layer of cnidarians

Cnidoblast – Are stinging cells, in epidermis layer of cnidarians cnidoblast in characteristic feature of cnidarians

Sensory cells – Scattered through out epidermis, but sensory cells are also observed in animals of other phyla

14. *Obelia* is characterised by

A. Ciliated free swimming planula larva
B. Metagenesis
C. Absence of cnidocytes
D. Statocysts present in medusoid stage

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

Sol. Answer (3)

Obelia (sea fur) belong to class hydrozoa, phylum cnidaria. After fertilization in *Obelia* ciliated free swimming larva-planula is formed. *Obelia* show alternation of generations or metagenesis. Medusae are sexual forms and bear true velum. Such medusa are called craspedote medusae.

15. Jelly fish : _____ : : Devil Fish : Mollusca

Complete the analogy

(1) Cnidaria
(2) Echinodermata
(3) Annelida
(4) Molluca

Sol. Answer (1)

Jellyfish like *Aurelia* belongs to phylum cnidaria/coelenterata.

16. Biradial symmetry and lack of cnidoblasts are the characteristics of

(1) *Hydra* and *Aurelia* (2) *Aurelia* and *Adamsia*

(3) *Ctenoplana* and *Pleurobrachia* (4) *Aurelia* and *Paramoecium*

Sol. Answer (3)

Biradial symmetry and lack of cnidoblast is feature of ctenophora phylum. *Ctenoplana* and *Pleurobrachia* belong to class ctenophora.

[Phylum : Platyhelminthes]

17. The presence of a special sense organ statocyst at the opposite end of mouth that is (aboral end) is the characteristic of

(1) Cnidarians (2) Platyhelminthes (3) Ctenophora (4) Nematodes

Sol. Answer (3)

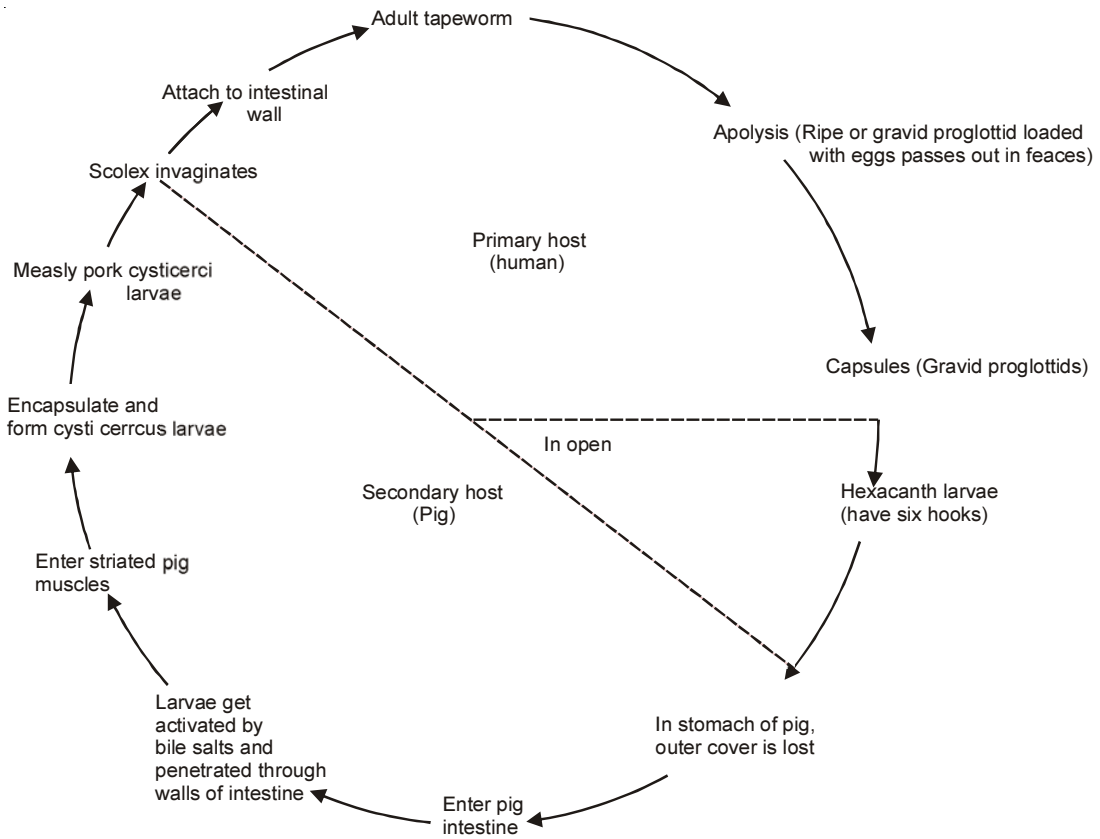
Ctenophora have special sense organs called statocyst at opposite end of mouth (aboral end), is characteristic feature of phylum ctenophora.

18. Cysticercus larva of *Taenia* develops in

(1) Man (2) Goat (3) Sheep (4) Pig

Sol. Answer (4)

Life cycle of *Taenia*



So cysticerci larva of taenia develops in pig and is infective stage for humans.

19. Free swimming ciliated larva of liver fluke is

(1) Redia (2) Miracidium

(3) Metacercaria (4) Cercaria

Sol. Answer (2)

Miracidium larva is free-swimming larvae of *Fasciola* and have ciliated epidermis.

Miracidium larva is infective stage for secondary host *i.e.* snail during life cycle of *Fasciola*.

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

(1) *Fasciola* (2) *Ancylostoma*

(3) *Asterias* (4) *Ascidia*

Sol. Answer (1)

Animals having single opening to outside that function as mouth as well as anus, have incomplete digestive system. Platyhelminthes have incomplete digestive system *e.g.- Fasciola Ancyclostoma* (Aschelminthes), *Asterias* (Echinodermata), Ascidia (Urochordate) have complete digestive system with two separate opening, mouth and anus.

21. In contrast to Annelids, the Platyhelminthes show

(1) Absence of body cavity (2) Bilateral symmetry

(3) Radial symmetry (4) Presence of pseudocoel

Sol. Answer (1)

Platyhelminthes does not have body cavity lined with mesoderm, hence are aceolomate but annelids are schizocoelomate, true coelomate, body cavity is lined by mesoderm.

22. Which of the following is **not** a digenetic worm?

(1) *Fasciola* (2) *Wuchereria*

(3) *Enterobius* (4) *Taenia*

Sol. Answer (3)

Digenetic worms are worms having two hosts to complete its life cycle

- *Fasciola*, primary host is sheep and goat and secondary host is snail (*Limnaea*) and (*Planorbis*)
- *Wuchereria*, primary host is human and secondary host is *Culex mosquito*
- *Enterobius,* (Pin worm) is monogenetic, *i.e.* complete life cycle in single host which is humans
- *Taenia*, primary host is human and secondary host is pig or cow, buffalo, sheep

23. The characteristics of a tapeworm are

A - Large, quadrate scolex, without rostellum and hooks

B - Primary host man, and secondary host cattle

C - Length 5 to 10 metres

Identify the tapeworm

(1) *Taenia solium* (2) *Taenia saginata*

(3) *Echinococcus* (4) *Hymenolepsis nana*

Sol. Answer (2)

Taenia saginata commonly known as beef tapeworm. Intermediate host is cow, buffalo and sheep. In *Taenia saginata* rostellum and hooks are absent. *Taenia saginata* is longest tapeworm (5-10 m) and it is most common tapeworm of man.

[Phylum : Aschelminthes, Annelida]

24. The secondary host of *Wuchereria*, that transmits filariasis is

(1) *Anopheles* (2) Sand fly

(3) Tse tse fly (4) *Culex*

Sol. Answer (4)

Culex mosquito is vector of filariasis, which is caused by *Wuchereria*.

25. Which of the following is **not** a characteristic feature of phylum Nemathelminthes?

(1) Bilateral symmetry, triploblastic, pseudocoelomate.

(2) They are possibly most abundant amongst the animals

(3) The false body cavity allows body wall muscles and digestive tract muscles to act independently of each other

(4) The bodywall has longitudinal muscles, circular muscles and an elastic cuticle

Sol. Answer (4)

In phylum Nemathelminthes/Aschelminthes only longitudinal muscle fibres are present, circular muscle fibres are absent.

26. Syncytial epidermis is present in

(1) *Aurelia* (2) *Ascaris* (3) *Asterias* (4) *Antedon*

Sol. Answer (2)

Syncytial epidermis is present in *Ascaris* (Aschelminthes). In body wall of *Ascaris*, below cuticle is present syncytial epidermis. Syncytial epidermis have fused cells or cells are not distinct and appear like multinucleated layer.

27. An individual bathing in an infected pool or coming in contact with contaminated water is liable to be infected with _____. The _____ larva stick to the surface of the skin of swimmer or bather, and penetrate the skin.

(1) *Ancylostoma,* IInd Juvenile (2) *Bilharzia,* Cercaria

(3) *Schistosoma,* Metacercariae (4) *Bilharzia,* Redia

Sol. Answer (2)

Schistosomiasis or Bilharzia is a disease caused by parasitic worm, Schistosoma. Disease is caused by parasites, which are released from fresh water snail. Humans get infected when they come in contact with infected water.

Carcaria larva, develop during life cycle of Schistosoma, infect humans by attaching and penetrating skin.

28. Which of the following statements are **correct** about the life cycle of *Ascaris lumbricoides?*

A. Infective agent - Embryonated egg with II Juvenile

B. Fertilised eggs containing the unsegmented ovum are passed with faeces

C. Four moultings of the larva occur two outside in soil within the egg-shell, one in lungs and one in intestine

D. Site of location of worm - small intestine.

(1) A and B (2) A only

(3) A, B & D (4) A, B, C & D

Sol. Answer (3)

Statement C is incorrect as

1st molting of *Ascaris* occurs in soil, 2nd molting occur in lung alveoli, 3rd molting also takes place in lung alveoli, 4th molting occurs in intestine.

29. Excretory structures of *Pheretima* are

(1) Nephridia (2) Malpighian tubules

(3) Flame cells (4) Choanocytes

Sol. Answer (1)

Annelids have specialized structure called nephridia for excretion.

[Phylum : Arthropoda]

30. Antennary glands of prawn are involved in

(1) Digestion (2) Sensory perception

(3) Respiration (4) Excretion

Sol. Answer (4)

Elimination of nitrogenous wastes is the function of antennal glands of crustaceans such as prawn.

Depending on location if green glands are present in antenna then they are antennary gland and if present in appendages they are called coxal glands.

Malpighian tubules are present at junction of midgut and hindgut and open in alimentary canal.

31. Term hexapoda can be associated with

(1) Butterfly (2) Scorpion

(3) Spides (4) Prawn

Sol. Answer (1)

Insects such as butterfly have three pairs of legs.

32. Johnston's organ present in mosquitoes, are to detect vibrations. They are present in

(1) Antenna (2) Appendages

(3) Anal cerci (4) Mouth parts

Sol. Answer (1)

Johnston's organs are present on antennae of mosquitoes.

33. Match the following (w.r.t. type of metamorphosis involved)

	Column I		**Column II**
a.	Paurometabolous	(i)	Silk worm
b.	Hemimetabolous	(ii)	Grasshopper
c.	Holometabolous	(iii)	Silver fish
d.	Ametabolous	(iv)	Dragon fly

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

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

Sol. Answer (1)

a. Paurometabolous – Grasshopper – Gradual metamorphosis life history includes egg, nymph and adult.

b. Hemimetabolous – Dragonflies – Incomplete metamorphosis life history includes egg, naiad, imago

c. Holometabolous – Silk worm – Complete metamorphosis life history includes egg, larva, pupa, imago

d. Ametabolous – Silverfish – Without metamorphosis life history includes egg, young and imago

34. In which of the following arthropods the eggs hatch within the female body and they bring forth the young alive?

(1) *Araneus* (2) *Macrobrachium*

(3) *Buthus* (4) *Lepisma*

Sol. Answer (3)

Buthus are scorpions and scorpions are ovoviviparous where eggs hatch with in female body and bring forth the young alive.

35. In which of the following arthropods the development is paurometabolous? The young hatched from eggs resemble the adult and often occupy the same habitat and they grow by moulting

(1) *Bombyx* (2) *Apis*

(3) *Anopheles* (4) *Periplaneta*

Sol. Answer (4)

Periplaneta (Cockroach) undergoes paurometabolous development with gradual metamorphosis. The young resembles the adult in its mode of life but differs in structure.

36. In honeybees and butterflies the gustatory and olfactory receptors are located, respectively on

(1) Mouth parts, Antennae (2) Feet, Antennae

(3) Proboscis, Legs (4) Mandibles, Antennae

Sol. Answer (2)

Gustatory receptors are sense receptors which help in tasting of food and olfactory receptors help in smelling. In honey bees and butterflies gustatory receptors are present on feet and olfactory receptors on antennae.

37. Which set includes Arthropods of economic importance providing useful products to man?

(1) *Anopheles, Culex,* tse-tse fly (2) *Apis*, *Bombyx, Laccifer*

(3) *Limulus, Peripatus* (4) *Locusta,* Grasshopper

Sol. Answer (2)

Apis (honey bee)	–	Forms two main products–honey which is used as food as well as medicines, other product is bee wax which is used in paints and cosmetics.
Bombyx (silk worm)	–	Provides silk for making shawls, sarees and other garments
Laccifer (Lac insect)	–	Provides lac, which acts as sealing wax and used in making bangles, toys, etc.

38. Which of the following is an important distinguishing feature of butterfly and **not** moth?

(1) Stout body; noctural

(2) Wings are not folded in sitting position

(3) Antennae are long with globose end, and diurnal

(4) Antennae are short, with tapering ends and feathery and nocturnal

Sol. Answer (3)

Option (3) is a distinguishing feature of butterfly. Differences between butterfly and moth

	Butterfly		**Moth**
i.	It is diurnal (active in day)	i.	It is nocturnal (active during night)
ii.	Body is not robust	ii.	Body is often robust
iii.	Antennae are knobbed distally	iii.	Antennae taper distally
iv.	When is at rest, keeps the wings held together vertically on its back	iv.	When is at rest, keeps the wings held out horizontally

[Phylum : Mollusca, Echinodermata, Hemichordata]

39. Eye of which molluscan group resembles vertebrate eye?

(1) Bivalvia (2) Gastropoda

(3) Pelecypoda (4) Cephalopoda

Sol. Answer (4)

Cephalopod molluscs have simple eyes which are analogous to vertebrate eyes *i.e.* similar in function to vertebrate eyes.

40. Radula is

(1) Larval form of cnidarians

(2) File like rasping organ of molluscs

(3) Larval form of annelids

(4) Uncovered structure present with echinoderms

Sol. Answer (2)

Radula is file-like rasping organ in mouth of mollusc which bears transverse rows of chitinous teeth.

Radula is meant for feeding.

41. In which group of molluscs torsion is a very important event in the life history?

(1) Gastropods (2) Bivalves

(3) Cephalopods (4) Monoplacophora

Sol. Answer (1)

In gastropod molluscs, early embryo is symmetrical with anterior mouth and posterior anus but during development the body twists, bringing anus near mouth showing torsion. So adult gastropod become asymmetric.

42. Which one of the following class of phylum mollusca is **incorrectly** matched with its general characteristics?

(1) Gastropoda – Larvae are bilaterally symmetrical; but in adult, the twisting of viscera makes them lose this symmetry. Some, like land snail and slug (a shell-less form), live on land.

(2) Bivalvia – They are sedentary filter feeders.

(3) Cephalopoda – They are at the apex of invertebrate evolution in terms of learned behaviour they exhibit. The eyes are image forming, same what similar to ours.

(4) Pelecypoda – They have sensory tentacles and their foot is reduced into a tongue-shaped structure which helps them to burrow into sea floor.

Sol. Answer (4)

Pelecypoda (Bivalvia) have no head, tentacles, eyes, jaws and radula. Foot is often hatchet shaped and extends between mantle lobes. They are mostly filter feeders, marine but scaphopoda class of molluscs has prehensile sensory tentacles on head. Foot is conical shaped and is used for digging.

43. Tube feet are characteristic structures of

(1) Star fish (2) Jelly fish

(3) Devil fish (4) Cuttle fish

Sol. Answer (1)

Water vascular system is characteristic feature of echinoderm. Tube feet is a part of water vascular system in echinoderm. Star fish is a member of phylum echinodermata.

44. Which of the following is **not** a character of phylum Hemichordata?

(1) Presence of stomochord which is mesodermal in origin

(2) Excretory organ is proboscis gland

(3) Circulatory system is open

(4) Respiration takes place through gills

Sol. Answer (1)

Stomochord in hemichordata is not mesodermal in origin, hence they are grouped in non-chordates. From roof of buccal cavity, arises blind projection called buccal diverticulum or stomochord. Earlier stomochord was considered equivalent to notochord but is not a notochord.

SECTION - B

Previous Years Questions

1. Match the following genera with their respective phylum : **[NEET-2019]**

(a) *Ophiura*	(i) Mollusca
(b) *Physalia*	(ii) Platyhelminthes
(c) *Pinctada*	(iii) Echinodermata
(d) *Planaria*	(iv) Coelenterata

Select the correct option :

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

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

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

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

Sol. Answer (3)

(a) *Ophiura* is an Echinoderm commonly known as brittle star.

(b) *Physalia* is coelenterate (Cnidarian) commonly known as portuguese man of war.

(c) *Pinctada* is pearl oyster belonging to taxon bivalve molluscs.

(d) *Planaria* belongs to platyhelminthes (flatworms).

2. Which of the following animals are true coelomates with bilateral symmetry? **[NEET-2019]**

(1) Annelids

(2) Adult Echinoderms

(3) Aschelminthes

(4) Platyhelminthes

Sol. Answer (1)

- Annelids exhibit bilateral symmetry with metameric segmentation where external segments correspond to internal segments.
- Aschelminthes are pseudocoelomates and platyhelminthes are acoelomates.
- Adult echinoderms are bilaterally symmetrical.

3. Consider following features **[NEET-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

(1) Annelida, Arthropoda and Chordata

(2) Annelida, Arthropoda and Mollusca

(3) Arthropoda, Mollusca and Chordata

(4) Annelida, Mollusca and Chordata

Sol. Answer (1)

True segmentation is present in Annelida, Arthropoda and Chordata. They also have organ system level of organisation, bilateral symmetry and are true coelomates

4. Match the following organisms with their respective characteristics :

(a) *Pila*

(b) *Bombyx*

(c) *Pleurobrachia*

(d) *Taenia*

(i) Flame cells

(ii) Comb plates

(iii) Radula

(iv) Malpighian tubules

Select the **correct** option from the following : **[NEET-2019]**

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

Sol. Answer (2)

(a) *Pila* is a Mollusc. The mouth contains a file - like rasping organ for feeding called radula.

(b) *Bombyx* is an Arthropod. In *Bombyx* excretion takes place through malpighan tubules.

(c) *Pleurobrachia* is Ctenophore. The body bears eight external rows of ciliated comb plates, which help in locomotion.

(d) *Taenia* is a platyhelminth with specialised cells called flame cells which help in osmoregulation and excretion

5. Which of the following animals does **not** undergo metamorphosis? **[NEET-2018]**

(1) Earthworm

(2) Tunicate

(3) Starfish

(4) Moth

Sol. Answer (1)

Metamorphosis refers to transformation of larva into adult.

Animal that perform metamorphosis are said to have indirect development.

In earthworm development is direct which means no larval stage and hence no metamorphosis.

6. In case of poriferans the spongocoel is lined with flagellated cells called **[NEET-2017]**

(1) Ostia

(2) Oscula

(3) Choanocytes

(4) Mesenchymal cells

Sol. Answer (3)

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

7. An important characteristic that Hemichordates share with Chordates is **[NEET-2017]**

(1) Absence of notochord
(2) Ventral tubular nerve cord
(3) Pharynx with gill slits
(4) Pharynx without gill slits

Sol. Answer (3)

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

8. Match **Column-I** with **Column-II** for housefly classification and select the **correct** option using the codes given below: **[NEET (Phase-2) 2016]**

	Column-I		**Column-II**
a.	Family	(i)	Diptera
b.	Order	(ii)	Arthropoda
c.	Class	(iii)	Muscidae
d.	Phylum	(iv)	Insecta

Codes:

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

Sol. Answer (1)

Housefly belongs to

(i) Phylum - Arthropoda
(ii) Class - Insecta
(iii) Order - Diptera
(iv) Family - Muscidae

9. Which of the following features is **not** present in the Phylum-Arthropoda? **[NEET-2016]**

(1) Jointed appendages
(2) Chitinous exoskeleton
(3) Metameric segmentation
(4) Parapodia

Sol. Answer (4)

Parapodia are present in aquatic annelids like *Nereis* and helps in swimming.

10. Metagenesis refers to: **[Re-AIPMT-2015]**

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

Sol. Answer (3)

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

11. Body having meshwork of cells, internal cavities lined with food filtering flagellated cells and indirect development are the characteristics of phylum: **[Re-AIPMT-2015]**

(1) Protozoa (2) Coelenterata (3) Porifera (4) Mollusca

Sol. Answer (3)

In poriferans, the body is loose aggregate of cells (meshwork of cells). Internal cavities and canals are lined with food filtering flagellated cells i.e. choanocyte/collar cell. Choanocytes help in filter feeding.

12. Which of the following characteristics is mainly responsible for diversification of insects on land? **[AIPMT-2015]**

(1) Eyes (2) Segmentation (3) Bilateral symmetry (4) Exoskeleton

Sol. Answer (4)

13. Which of the following endoparasites of humans does show viviparity? **[AIPMT-2015]**

(1) *Ascaris lumbricoides* (2) *Ancylostoma duodenale*

(3) *Enterobius vermicularis* (4) *Trichinella spiralis*

Sol. Answer (4)

14. Select the Taxon mentioned that represents both marine and fresh water species **[AIPMT-2014]**

(1) Echinoderms (2) Ctenophora (3) Cephalochordata (4) Cnidaria

Sol. Answer (4)

Echinoderms, ctenophores and cephalochordates are exclusively marine.

15. Which one of the following living organisms completely *lacks* a cell wall? **[AIPMT-2014]**

(1) Cyanobacteria (2) Sea-fan(*Gorgonia*) (3) *Saccharomyces* (4) Blue-green algae

Sol. Answer (2)

16. *Planaria* possess high capacity of **[AIPMT-2014]**

(1) Metamorphosis (2) Regeneration

(3) Alternation of generation (4) Bioluminescence

Sol. Answer (2)

Planaria possess high capacity of regeneration.

17. Which group of animals belong to the same phylum? **[NEET-2013]**

(1) Earthworm, Pinworm, Tapeworm (2) Prawn, Scorpion, *Locusta*

(3) Sponge, Sea anemone, Starfish (4) Malarial parasite, *Amoeba,* Mosquito

Sol. Answer (2)

Prawn, Scorpion and *Locusta* all belong to phylum arthropoda.

18. One of the representatives of Phylum Arthropoda is **[NEET-2013]**

(1) Silverfish (2) Pufferfish (3) Flying fish (4) Cuttlefish

Sol. Answer (1)

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

(1) Flying fish, cuttlefish, silverfish, - Pisces

(2) Centipede, millipede, spider, scorpion - Insecta

(3) House fly, butterfly, tsetsefly, silverfish - Insecta

(4) Spiny anteater, sea urchin, sea cucumber -Echinodermata

Sol. Answer (3)

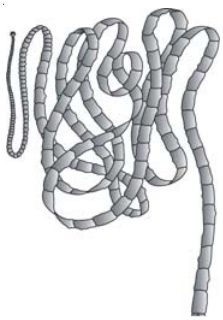
20. In which one of the following, the genus name, its two characters and its phylum are not correctly matched, whereas the remaining three are correct? **[AIPMT(Prelims)-2012]**

	Genus Name		Two Characters	Phylum
(1)	*Sycon*	(a) (b)	Pore bearing Canal System	Porifera
(2)	*Periplaneta*	(a) (b)	Jointed Appendages Chitinous Exoskeleton	Arthropoda
(3)	*Pila*	(a) (b)	Body segmented Mouth with Radula	Mollusca
(4)	*Asterias*	(a) (b)	Spiny skinned Water vascular System	Echinoder-mata

Sol. Answer (3)

Pila (apple snail) belongs to phylum mullusca, class gastropoda. In Pila, radula bearing chitinous teeth is present in mouth but molluscs does not have segmented body almost all molluscs have unsegmented body.

21. The figure shows four animals (a), (b), (c) and (d). Select the correct answer with respect to a common characteristics of two of these animals. **[AIPMT(Mains)-2011]**

(a) 

(b) 

(c) 

(d) 

(1) (a) & (d) have cnidoblasts for self-defence
(2) (c) & (d) have a true coelom
(3) (a) & (d) respire mainly through body wall
(4) (b) & (c) show radial symmetry

Sol. Answer (2)

(a) is tapeworm, belong to phylum platyhelminthes, are acoelomate

(b) is jelly fish (Aurelia), belonging to phylum cnidaria/coelentrata. These are also acoelomate

(c) is octopus belonging to phylum mollusca, they are schizocoelomate

(d) is scorpion belonging to phylum arthropoda, they are also schizocoelomate

Both (c) & (d) i.e. *Octopus* and scorpion have true coelom i.e. schizocoelomate.

22. One example of animals having a single opening to the outside that serves both as mouth as well as anus is **[AIPMT (Prelims)-2010]**

(1) *Fasciola* (2) *Octopus* (3) *Asterias* (4) *Ascidia*

Sol. Answer (1)

Organisms having single opening to outside that serves both mouth as well as anus have incomplete digestive system.

- *Fasciola* – incomplete digestive system (Platyhelminthes)
- *Octopus* – (Mollusca) complete digestive system
- *Asterias* – (Echinodermata) complete digestive system
- *Ascidia* – (Urochordata) complete digestive system

23. Which one of the following kinds of animals are *triploblastic*? **[AIPMT (Prelims)-2010]**

(1) Corals (2) Flat worms (3) Sponges (4) Ctenophores

Sol. Answer (2)

Triploblastic refers to organisms having three germ layers- ectoderm, mesoderm and endoderm.

(1) Corals (Cnidarians) – Diploblastic organisms

(2) Flatworms (Platyhelminthes) – Triploblastic

(3) Sponges (Porifera) – Diploblastic

(4) Ctenophores – Diploblastic

24. Which one of the following statements about certain given animals is **correct**? **[AIPMT (Prelims)-2010]**

(1) Flat worms (Platyhelminthes) are coelomates

(2) Round worms (Aschelminthes) are pseudocoelomates

(3) Molluscs are acoelomates

(4) Insects are pseudocoelomates

Sol. Answer (2)

(1) Flatworms are acoelomates (not coelomates)

(2) Roundworms/Aschemlminthes are pseudocoelomates

(3) Molluscs are schizocoelomates (not acoelomates)

(4) Insects are schizocoelomates (not pseudocoelomates)

25. Which one of the following groups of animals is bilaterally symmetrical and triploblastic? **[AIPMT (Prelims)-2009]**

(1) Aschelminthes (Roundworms) (2) Ctenophores

(3) Sponges (4) Coelenterates (Cnidarians)

Sol. Answer (1)

- Sponges – Asymmetric or radially symmetric, diploblastic
- Coelentrates (cnidarians) – Radially symmetric, diploblastic
- Aschelminthes (roundworms) – Bilateral symmetric, triploblastic
- Ctenophores – Radially symmetric, diploblastic

26. If a live earthworm is pricked with a needle on its outer surface without damaging its gut, the fluid that comes out is **[AIPMT (Prelims)-2009]**

(1) Coelomic fluid (2) Haemolymph (3) Slimy mucus (4) Excretory fluid

Sol. Answer (1)

27. Which one of the following groups of three animals each is **correctly** matched with their one characteristic morphological feature? **[AIPMT (Prelims)-2008]**

	Animals		**Morphological feature**
(1)	Cockroach, Locust, *Taenia*	–	Metameric segmentation
(2)	Liver fluke, Sea anemone, Sea cucumber	–	Bilateral symmetry
(3)	Centipede, Prawn, Sea urchin	–	Jointed appendages
(4)	Scorpion, Spider, Cockroach	–	Ventral solid central nervous system

Sol. Answer (4)

Scorpion, Spider and Cockroach all belong to phylum arthropoda and nervous system in arthropoda is solid, ventral, ganglionated central nervous system.

28. *Ascaris* is characterized by **[AIPMT (Prelims)-2008]**

(1) Presence of true coelom and metamerism (metamerisation)

(2) Absence of true coelom but presence of metamerism

(3) Presence of neither true coelom nor metamerism

(4) Presence of true coelom but absence of metamerism

Sol. Answer (3)

Ascaris belong to phylum Aschelminthes. Aschelminthes are pseudocoelomate *i.e.* false coelom is present and have unsegmented body. Thus, metamerism is absent in *Ascaris*.

29. Which one of the following is **not** a characteristic of phylum Annelida? **[AIPMT (Prelims)-2008]**

(1) Ventral nerve cord

(2) Closed circulatory system

(3) Segmentation

(4) Pseudocoelom

Sol. Answer (4)

Annelida phylum belong to non-chordate hence have ventral nerve cord. Annelid possesses closed circulatory system and true segmentation. Annelid possess true coelom hence are eucoelomate. Annelids are not pseudocoelomate.

30. What is **true** about *Nereis*, Scorpion, Cockroach and Silver fish? **[AIPMT (Prelims)-2007]**

(1) They all belong to the same phylum

(2) They all have jointed paired appendages

(3) They all possess dorsal heart

(4) None of them is aquatic

Sol. Answer (3)

31. Which one of the following pairs is **mismatched**? **[AIPMT (Prelims)-2007]**

(1) *Bombyx mori* – Silk

(2) *Pila globosa* – Pearl

(3) *Apis indica* – Honey

(4) *Kenia lacca* – Lac

Sol. Answer (2)

Pinctada (Pearl oyster) is famous for pearl formation.

32. Which one of the following is a matching set of a phylum and its three examples? **[AIPMT (Prelims)-2006]**

(1) Cnidaria – *Bonellia, Physalia, Aurelia*

(2) Platyhelminthes – *Planaria, Schistosoma, Enterobius*

(3) Mollusca – *Loligo, Teredo, Octopus*

(4) Porifera – *Spongilla, Euplectella, Pennatula*

Sol. Answer (3)

i. *Spongilla* – Porifera, *Euplectella* – Porifera, *Pennatula* – Cnidaria

ii. *Bonellia viridis* – Annelida, *Physalia* – Cnidaria, *Aurelia* – Cnidaria – *Annelida*

iii. *Planaria* – Platyhelminthes, *Schistosoma* – Platyhelminthes, *Enterobius* – Aschelminthes

iv. *Loligo* – Mollusca, *Teredo* – Mollusca, *Octopus* – Mollusca

33. Metameric segmentation is the characteristic of **[AIPMT(Prelims)-2006]**

(1) Platyhelminthes and arthropoda

(2) Echinodermata and annelida

(3) Annelida and arthropoda

(4) Mollusca and chordata

Sol. Answer (3)

Metameric segmentation (true segmentation) is characteristic feature of Annelid and arthropoda. Body of arthropods is segmented.

34. Biradial symmetry and lack of cnidoblasts are the characteristics of **[AIPMT (Prelims)-2006]**

(1) Starfish and sea anemone

(2) *Ctenoplana* and *Beroe*

(3) *Aurelia* and *Paramecium*

(4) *Hydra* and *starfish*

Sol. Answer (2)

Presence of cnidoblast is characteristic feature of cnidaria. *Ctenoplana* and *Beroe* belong to phylum *Ctenophora*. Ctenophores are radially symmetrical and cnidoblast cells are absent.

35. Two common characters found in centipede, cockroach and crab are **[AIPMT (Prelims)-2006]**

(1) Compound eyes and anal cerci

(2) Jointed legs and chitinous exoskeleton

(3) Green gland and tracheae

(4) Book lungs and antennae

Sol. Answer (2)

Centipede, Cockroach and Crab belong to Arthropoda. Arthropodes bear jointed legs and have chitinous exoskeleton.

36. From the following statements select the **wrong** one **[AIPMT (Prelims)-2005]**

(1) Millipedes have two pairs of appendages in each segment of the body

(2) Prawn has two pairs of antennae

(3) Animals belonging to phylum-Porifera are exclusively marine

(4) Nematocysts are characteristic of the phylum- Cnidaria

Sol. Answer (3)

Animals belonging to phylum porifera are mostly marines but some members live in fresh water also *e.g. Spongilla* (fresh water sponge).

37. In contrast to annelids the platyhelminths show **[AIPMT (Prelims)-2005]**

(1) Radial symmetry

(2) Presence of pseudocoel

(3) Bilateral symmetry

(4) Absence of body cavity

Sol. Answer (4)

38. Which one of the following groups of animals reproduce only by sexual means?

(1) Ctenophora (2) Cnidaria (3) Porifera (4) Protozoa

Sol. Answer (1)

Ctenophores reproduce exclusively by sexual means only but sponges, cnidarians and protozoans undergo asexual means of reproduction also (fragmentation, budding, fission respectively)

39. Tube feet are the characteristic structure of

(1) Star fish (2) Jelly fish (3) Cray fish (4) Cuttle fish

Sol. Answer (1)

Water vascular system is characteristic feature of phylum echinodermata (star fish). Tube feet are tube-like appendages at end of lateral canals in water vascular system. Thus, tube feet are characteristic feature of star-fish.

40. Among the following organisms point out a completely non-parasitic form

(1) Tape worm (2) Mosquito (3) Sea anemone (4) Leech

Sol. Answer (3)

Tapeworm, Mosquito, Leech all three are parasitic forms. Sea anemone (*Adamsia*) belongs to class anthozoa of cnidaria phylum. These are not parasites but are free living forms.

41. Which of the following is an example of platyhelminthes?

(1) *Plasmodium* (2) S*chistosoma* (3) *Trypanosoma* (4) *Wuchereria*

Sol. Answer (2)

(1) *Plasmodium* – Protozoa

(2) *Schistosoma* – Platyhelminthes

(3) *Trypanosoma* – Protozoa

(4) *Wuchereria* – Aschelminthes

42. Radial symmetry is usually exhibited in animals which

(1) Are attached to the substratum (2) Have one opening of alimentary canal

(3) Live in water (4) Have ciliary mode of feeding

Sol. Answer (1)

Radial symmetry is advantageous for organism which are fixed to substratum as it helps the animals to gather food from all sides and also repel enemies from all sides.

43. One of the special character of phylum coelenterata only is the occurrence of

(1) Polymorphism (2) Flame cells (3) Hermaphroditism (4) Nematocysts

Sol. Answer (4)

Presence of cnidoblast is characteristic feature of phylum coelentrata. Cnidoblast cells bear a nucleus which is present near its base and a stinging capsule called nematocyst. Nematocyst is filled with a poisonous fluid called hypnotoxin which is injected with the help of thread tube.

44. Which of the following does not have an open circulatory system?

(1) Frog's tadpole (2) Prawn (3) *Chelifer* (4) Cockroach

Sol. Answer (1)

Prawn, *Chelifer*, Cockroach belong to phylum *arthropoda* having open circulatory system.

Frog's tadpole belong to vertebrates having closed circulatory system.

45. The neurogenic heart is the characteristic feature of

(1) Human (2) Invertebrates (3) Rabbit (4) Rat

Sol. Answer (2)

Vertebrates (human, rabbit and rat) have myogenic heart which is two, three or four-chambered.

Invertebrates have neurogenic heart.

46. In silkworm, silk is the product of

(1) Salivary gland of the larva (2) Salivary gland of the adult

(3) Cuticle of the larva (4) Cuticle of the adult

Sol. Answer (1)

Silkworm (*Bombyx*), silk is product of salivary gland of larvae.

47. The organisms attached to the substratum, generally, possess

(1) One single opening of the digestive canal (2) Cilia on the surface to create water current

(3) Radial symmetry (4) Asymmetrical body

Sol. Answer (3)

Organisms which remain attached to substratum (fixed animals) possess radial symmetry, radial symmetry is advantageous as it helps animals to gather food from all sides and also repel enemies from all sides.

48. Benthic animals are those, which

(1) Are submerged in area (2) Float on the sea surface

(3) Are deep dweller in sea (4) Are floating (free) organisms

Sol. Answer (3)

Benthic animals are animals which live in deep sea.

49. The formation of canal system in sponges is due to

(1) Folding of inner walls (2) Gastro-vascular system

(3) Reproduction (4) Non-porous walls

Sol. Answer (1)

Formation of canal system is sponges is due by porous walls of sponges pores known as 'ostia' allows entry of water to spongocoel and exit via 'osculum'. Sycanoid / leucanoid canal system is formed due to folding of inner walls.

50. The nephridia in earthworm are analogous to

(1) Nematoblasts of *Hydra* (2) Flame cells of *Planaria*

(3) Gills of *Prawn* (4) Trachea of insects

Sol. Answer (2)

Nephridia in earthworm are specialized cells meant for excretion. Flame cells in planaria (Platyhelminthes) are specialised cells which perform excretory functions.

Nephridia and flame cells both perform excretory functions.

51. Coelom is found between the cavity of

(1) Body wall and ectoderm (2) Ectoderm and endoderm

(3) Mesoderm and body wall (endoderm) (4) Mesoderm and ectoderm

Sol. Answer (2)

Body cavity can mean any internal space or series of spaces present inside body. True body cavity generally refers to large fluid-filled space lying between outer body wall and inner gut wall.

52. Which of the following statement is **without** exception for sponges?

(1) They all have calcareous spicules
(2) They have high regenerative power
(3) They are found only in marine water
(4) They are all radially symmetrical

Sol. Answer (2)

Sponges possess high degree of regeneration power. Even the cells of crushed sponge can regroup to form sponge.

53. The embryonated egg of *Ascaris* represents

(1) An egg with blastula
(2) An egg with a juvenile
(3) An egg with an egg
(4) An egg with gastrula

Sol. Answer (2)

In Ascaris, fertilised egg gets surrounded by shell. Inside shell the zygote develops into rhabditiform or juvenile stage in 10-14 days. After 10 days it develop into second stage juvenile, second stage juvenile is infective stage. Shell having infective statge is called embryonated egg.

54. What is **common** among silver fish, scorpion, crab and honey bee?

(1) Jointed legs
(2) Metamorphosis
(3) Compound eyes
(4) Poison glands

Sol. Answer (1)

Silver fish, Scorpion, Crab, Honey bee belong to phylum Arthropoda. All arthropods are characterised for having jointed appendages.

55. Most appropriate term to describe the life cycle of *Obelia* is

(1) Metamorphosis (2) Neoteny (3) Metagenesis (4) All of these

Sol. Answer (3)

Obelia shows alternation of generation between sexual and asexual forms *i.e.* medusa and polyp respectively. *Obelia* exists in both the forms shows alternation of generation in their life. This alternation of generation is called metagenesis.

56. Solenocytes are the main excretory structure in

(1) Echinodermates (2) Platyhelminthes (3) Annelids (4) Molluscs

Sol. Answer (2)

Solenocytes are flame cells. Flame cells are specialised cells of platyhelminthes which help in excretion as well as osmoregulation.

57. Temperature changes in the environment, affect most of the animals which are

(1) Poikilothermic
(2) Homoiothermic
(3) Aquatic
(4) Desert living

Sol. Answer (1)

Animals which can change their body temperature, with change in environment is called poikilothermal animals.

58. The process of series of changes from larva to adult, after embryonic development, is called

(1) Regeneration
(2) Growth
(3) Metamorphosis
(4) Ageing

Sol. Answer (3)

Metamorphosis is process of series of changes from larva to adult.

59. Similarity in *Ascaris lumbricoides* and *Anopheles stephens*

(1) Sexual dimorphism (2) Metamerism

(3) Anaerobic respiration (4) Endoparasitism

Sol. Answer (1)

Ascaris lumbricoides show sexual dimorphism as male and female are distinct externally. Often females are longer than males.

Anopheles stephens also exhibit sexual dimorphism as antennae in females are sparsely haired while those of males have conspicuous whorls of hairs.

60. Which statement is **correct**?

(1) *A. indica* is largest wild honey bee

(2) Wax is waste material of honey bee

(3) Karl von Frisch deciphered the communication methods in honey bee

(4) Drone of honey bee is diploid

Sol. Answer (3)

- ❖ Wax is not waste material of honey bee. Wax is an important useful product of honey bee used in paints and cosmetics.
- ❖ Prof. Karl von Frisch got Nobel prize (1973) for decoding the language of bee dance and deciphered communication methods in honey bee.
- ❖ Drone of honey bee, develops from unfertilized egg and are haploid.

61. Which of the following animals have scattered cells with cell - tissue grade organisation?

(1) Sponge (2) *Hydra* (3) Liver fluke (4) *Ascaris*

Sol. Answer (2)

Sponges – Celllular level of organization *Hydra* – Tissue level of organization

Liver fluke – Organ level of organization *Ascaris* – Organ system level of organization

62. Blastopore is the pore of

(1) Archenteron (2) Blastocoel (3) Coelom (4) Alimentary canal

Sol. Answer (1)

Blastopore is opening of archenteron to exterior of embryo at gastrula stage.

63. In *Hydra*, waste material of food digestion and nitrogenous waste material are removed from

(1) Mouth and mouth (2) Body wall and body wall

(3) Mouth and body wall (4) Mouth and tentacles

Sol. Answer (3)

Hydra, has incomplete digestive system, with single opening for entry and exit of substances. Undigested materials are removed from mouth and waste materials are also removed from body wall by diffusion.

64. In which of the following haemocyanin pigment is found?

(1) Annelida (2) Echinodermata (3) Insecta (4) Lower invertebrates

Sol. Answer (4)

Haemocyanin is respiratory pigment that transports oxygen through out body of some invertebrate animals. Haemocyanin is observed in some molluscs and arthropods.

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

(1) Sponge (2) Earthworm (3) Cockroach (4) *Hydra*

Sol. Answer (4)

- ❖ Sponges lack nerve cells and brain is also absent.
- ❖ *Hydra* have nerve cells which form nerve net but specialised brain is not present.
- ❖ Earthworm and cockroach posses ganglionated nervous system.

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

(1) *Pheretima* - Sexual dimorphism (2) *Musca* - Complete metamorphosis

(3) *Chameleon* - Mimicry (4) *Taenia* - Polymorphism

Sol. Answer (2)

Musca (housefly) is an insects with complete metamorphosis (Holometabolous development). Life history includes egg, larva, pupa and imago. Larva of house fly is called maggot.

67. Ommatidia serve the purpose of photoreception in

(1) Cockroach (2) Frog

(3) Humans (4) Sunflower

Sol. Answer (1)

Ommatidia are compound eyes which help these animals to perceive light falling on them. Ommatidia or compound eyes is observed in cockroach.

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

(1) Redia and miracidium (2) Cercaria and redia

(3) Metacercaria and cercaria (4) Miracidium and metacercaria

Sol. Answer (4)

Infective stage for intermediate host is miracidium larvae of *Fasciola hepatica*.

Infective stage for primary host (sheep or goat) is metacarria larvae of *Fasciola hepatica*.

69. *Sycon* belongs to a group of animals, which are best described as

(1) Unicellular or acellular

(2) Multicellular without any tissue organization

(3) Multicellular with a gastrovascular system

(4) Multicellular having tissue organization, but no body cavity

Sol. Answer (2)

Sycon belongs to phylum Porifera. Sponges are multicellular animals with cellular level of organization.

70. Which one of the following is **not** correctly matched?

(1) *Glossina palpalis* - Sleeping sickness

(2) *Culex pipiens* - Filariasis

(3) *Aedes aegypti* - Yellow fever

(4) *Anopheles culifacies* - Leishmaniasis

Sol. Answer (4)

Anopheles culifaciens is a major vector for malaria in Indian subcontinent. *Leishmaniasis* is transmitted by sandfly (*Phlebotomus*)

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

(1) Annelida (2) Mollusca

(3) Cnidaria (4) Echinodermata

Sol. Answer (4)

Adult echinoderms are radially symmetric but larvae are bilaterally symmetrical. Adult echinoderms have pentamerous radial symmetry and their body parts are arranged along five aves.

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

(1) Insecta (2) Myriapoda

(3) Crustacea (4) Arachnida and curstacea

Sol. Answer (1)

- ❖ In insecta body is divisible into head, thorax and abdomen
- ❖ Myriapoda body is divisible into head and trunk
- ❖ Crustacea body is divisible into cephalothorax and abdomen
- ❖ In arachnida body of organism is divisible into cephalothorax and abdomen

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

(1) *Octopus* (2) *Pheretima*

(3) *Periplaneta* (4) *Nereis*

Sol. Answer (3)

Arthropodes have open circulatory system. *Periplaneta* belongs to phylum arthropoda.

Octopus (cephalopod molluscs) have closed circulatory system

Pheretima (Annelida) have closed circulatory system

Nereis (Annelida) have closed circulatory system

74. Which one of the following is **not** a living fossil?

(1) *Peripatus* (2) King crab

(3) *Sphenodon* (4) *Archaeopteryx*

Sol. Answer (4)

Archaeopteryx is missing link between reptiles and birds.

75. Biological organisation starts with

(1) Cellular level (2) Organismic level

(3) Atomic level (4) Submicroscopic molecular level

Sol. Answer (4)

Biological organisation start with submicroscopic molecular level.

76. *Peripatus* is a connecting link between

(1) Coelenterata and Porifera (2) Ctenophora and Platyhelminthes

(3) Mollusca and Echinodermata (4) Annelida and Arthropoda

Sol. Answer (4)

Peripatus is considered as connecting link between annelida and arthropoda as it has unjointed legs and breathes by trachea.

SECTION - C

Assertion-Reason Type Questions

1. A : Cysticercosis is caused by accidental ingestion of onchospheres.

   R : *Taenia solium* is a monogenetic parasite.

Sol. Answer (3)

Assertion is true, i.e. cysticercosis is caused by accidental ingestion of onchosphere larvae.

Reason is false as *Taenia solium* is a digenetic parasite, having humans as primary host and pig as secondary host.

2. A : Mantle of pearl oyster is three layered.

   R : Nacre secreting cells are present just below the nacreous layer.

Sol. Answer (2)

Assertion is true, *i.e.* Mantle of pearl oyster is three layered.

Reason is also true *i.e.* Nacre secreting cells are present just below nacreous layer.

But reason is not correct explanation for assertion.

3. A : Annelids, arthropods and molluscs are protostomial coelomates.

   R : All the three phyla include members with bilateral symmetry and true coelom.

Sol. Answer (2)

Assertion is true *i.e.* Annelids, arthropods and molluscs are protostomial coelomates.

In all three phyla, mouth develops first in embryonic digestive tube.

Reason is also true *i.e.* all three phyla include members with bilateral symmetry and true coelom.

But reason is not correct explanation for assertion.

4. A : In *Balanoglossus*, proboscis is involved in excretion.

   R : Glomerulus is present is probosis.

Sol. Answer (1)

Assertion is true *i.e.* In *Balanoglossus*, proboscis is involved in excretion.

Balanoglossus belongs to phylum hemichordate where proboscis gland performs the excretory function.

Reason is also true *i.e.* Glomerulus is present in proboscis which is responsible excretory function of proboscis gland. Both Assertion and reason are correct and reason is correct explanation for assertion.

5. A : Echinoderms are the only radially symmetrical animals with true coelom.

   R : Echinoderms have secondarily adapted to radial symmetry.

Sol. Answer (2)

Assertion is true, Echinoderms are only radially symmetrical animals with true coelom.

Reason is also true as echinoderms have secondarily adapted to radial symmetry, because larval forms of echinoderm is bilaterally symmetric but adults are radially symmetric.

Both assertion and reason are correct, but reason is not correct explanation for assertion.

6. A : *Hydra* has a nerve net but no brain.

R : All its neurons are apolar and connected.

Sol. Answer (1)

Assertion is true, In *Hydra*, nerve cells are present which join to form nerve net but nerve cells are not organized to form brain in *Hydra*.

Reason is also true as neurons in *Hydra* are apolar. These apolar neurons (with no axon terminals) can join to form nerve net. Hence both Assertion and Reason is correct and Reason is correct explanation for Assertion.

7. A : Radula is rasping organ of all molluscs.

R : It is made up of vitrodentine.

Sol. Answer (4)

Assertion is false as radula is not present in all molluscs.

Radula is absent in class pelecypoda (Bivalvia) of molluscs.

Reason is also false as radula bears chitinous teeth.

Both assertion and reason are false.

8. A : True coelom originated for the first time in phylum Annelida.

R : It allowed the animal to have an alimentary canal longer than the body & space for storing gametes.

Sol. Answer (2)

Assertion is true, True coelom (lined by mesoderm) on both sides for first time originated in phyla annelida.

Reason is true, Annelids have longer alimentary canal than body and space for storing gametes.

Both Assertion and Reason are correct, but Reason is not correct explanation for Assertion.

9. A : Chitinous exoskeleton is a characteristic feature of arthropods.

R : It allows diffusion of water vapour from atmosphere to the body.

Sol. Answer (3)

Assertion is true, Chitinous exoskeleton is a characteristic feature of arthropods.

Reason is false as chitin is impermeable to water and does not allow diffusion of water vapour from atmosphere to body or vice-versa.

Assertion is true but Reason is false.

❑ ❑ ❑