ZOO201 Complete 100% guess paper by Badsha Ali

1= write down 3 Characteristics of Phylum Arthropods

- They have paired jointed appendages.
- Ecdysis or molting takes place during growth.
- They have ventral nervous system.
- Coelom reduced to cavities. These cavities are reduced to gonads and sometimes excretory organs.

2=Short note on rotifers

- They are abundant in most fresh water habitats.
- A few species (less than 10%) are marine.
- Some have beautiful colors, although most are transparent, and some have odd and bizarre shapes.
- They are triploblastic, bilateral, unsegmented, and pseudo coelomate.

3=Excretory system

The systems that excrete wastes from the body. For example, the system of organs that regulates the amount of water in the body and filters and eliminates from the blood the wastes produced by metabolism.

4=Excretory system in earthworm:

Excretion in earthworm is performed by long, thin and coiled tubules known as nephridia. It is found in all segment except first two. They are the small microscopic coiled tube with the thin wall which is glandular and vascular. According to location, nephridia are of three types they are:

- Septal nephridia
- Pharyngeal nephridia
- Integumentary nephridia

5=Function of pellicles in protozoans:

Most protozoans are enclosed by a skeletal structure known as the pellicle consisting of the plasma membrane and underlying cytoskeleton (with additional membranes, microtubules, microfilaments, or plates of cellulose or protein). The pellicle maintains the shape of the cell.

6=Difference between phylum arthropod and annelids:

Annelids	Arthropods
From head to tail, metameric segmentation is observed where the body is segmented.	The body is not completely segmented due to incomplete metameric segmentation.
Annelids' circulatory systems are closed.	Arthropods have a free-flowing circulatory system.
The body is divided into several segments that are all the same.	The body is divided into several specialized sections.
Annelids do not have appendages.	Arthropods have appendages that are joined together.
They are known as segmented worms.	Animals with jointed legs are what they are called.
The true body cavity they have is called a coelom.	The presence of a blood-filled body cavity, known as a 'hemocoel.'
The majority of annelids are hermaphrodites. For example, Earthworm.	They are divided into two sexes.For example, Crab.

7=Typhlosole:

A longitudinal fold of the intestinal wall in certain invertebrates that increases the absorptive and digestive surface area of the intestine. Typhlosoles occur in bivalve mollusks, lampreys and some annelids and echinoderms.

8=Dioecious and monoecious:

The plants or organisms that have both female and male sexual organs or flowers on the same plant are called Monoecious plants. Examples, banana, Squash, Earthworms, slugs, jellyfish and planarians

The plants or organisms that have separate female and male sexual organs or flowers are called dioecious plants. Examples, holly plants, ginkgo tree, Mammals, birds, reptiles and insects.

9=Tubular system in nematodes:

Nematodes are tubular in shape and are considered pseudo coelomates because of they do not possess a true coelom. Nematodes do not have a well-developed excretory system, but do have a complete digestive system. Nematodes possess the ability to shed their exoskeleton in order to grow, a process called ecdysis.

10=Evolutionary adaptations process of parasitic nematodes:

The main evolutionary innovation of nematodes is their complete digestive system, which contains two openings (a mouth and anus).

Since the ingestion and the defecation processes can occur at different extremities of the digestive tube, organisms with a complete digestive system have the advantage of being able to

ingest new food while the residue of already eaten food is still inside the body and has not yet been eliminated.

1. They have high reproductive potential.

2. Their life cycles increase the likelihood of transmission from one host to another.

3. They develop an enzyme resistant cuticle, resistant eggs, and encysted larvae.

11=Difference between monophyletic and paraphyletic and polyphyletic:

Monophyletic group is a group of organisms that includes an ancestral species and its entire descendent species. Monophyleyic group is also known as a clade. A clade is a natural kind of a group that is very important in phylogenetic classification. Monophyletic groups are created based on the shared derived characteristics. Hence, monophyletic group can visualize relationships among the organisms in a phylogenetic tree.

Paraphylatic group is a group of organisms that consist of an ancestral species and some of its descendant species. Not all the descendent species are included in this group. Paraphyletic group is nearly monophyletic. The paraphyletic group is created based on the symplesiomorphy. Some well known paraphyletic taxa are Pisces and Reptilia.

A polyphyletic taxon is a group of organisms that lack a common ancestor. The polyphyletic group consists of unrelated organisms who are descended from more than one ancestor. It is kind of an unnatural group of organisms. Normally when a polyphyletic taxon is found, it is reclassified since it is a totally unnatural assemblage.

12=Spongocoel:

The simplest and least common sponge body form is the ascon. Ascon sponges are vase like. Ostia are the outer openings of porocytes and lead directly to a chamber called the spongocoel.

13=Determinate cleavage:

Cleavage is a process of rapid mitotic cell divisions of the zygote to form number of cells for building up the offspring's body.

Determinate cleavage: It results in developmental fate of cells being set early in embryo development.

14=Circulatory system of cephalopods:

Cephalopods are the only molluscs with a closed circulatory system. Coleoids have two gill hearts (also known as branchial hearts) that move blood through the capillaries of the gills. A single systemic heart then pumps the oxygenated blood through the rest of the body.

Like most molluscs, cephalopods use hemocyanin, a copper-containing protein, rather than hemoglobin, to transport oxygen. As a result, their blood is colorless when deoxygenated and turns blue when exposed to air.

15=Types of malaria parasite:

Five species of Plasmodium (single-celled parasites) can infect humans and cause illness: Plasmodium falciparum (or P. falciparum)

- Plasmodium malariae (or P. malariae)
- Plasmodium vivax (or P. vivax)
- Plasmodium ovale (or P. ovale)
- Plasmodium knowlesi (or P. knowlesi)

16=Role of osphradia in molluscs:

Osphradia are chemoreceptors and help detect prey.

a single or paired sense organ connected with one of the visceral ganglia and situated near the gill of most aquatic mollusks that is supposed to be olfactory or to test the purity of the water passing to the gills.

17=Define siphon:

Siphons in molluscs are tube-like structures in which water flows (or more rarely in which air flows). The water flow is used for one or more purposes such as locomotion, feeding, respiration, and reproduction. The siphon is part of the mantle of the mollusc, and the water flow is directed to (or from) the mantle cavity.

18=Difference Between Protonephridia And Metanephridia

PROTONEPHRIDIA	METANEPHRIDIA
Protenephridia refers to the tubular excretory structures in certain invertebrates, usually ending internally in flame cells and having an external pore.	Metanephridia refers to the primitive excretory organs present in many invertebrates, originating in a ciliated coelomic funnel.
Protonephridia are a network of dead-end tubules without internal openings.	Metanephridia is composed of ciliated funnel-like opening structures.

19=What is hydra and its mode of reproduction:

Hydra is a genus of small, freshwater organisms of the phylum Cnidaria and class Hydrozoa. They are native to the temperate and tropical regions.

- Hydra reproduces asexually by budding. During the summer season, when the animal is well-fed and healthy, budding is the usual reproduction method. It occurs all time of the year.
- Hydra reproduces sexually by the fusion of gametes when the environmental condition becomes unfavorable (generally in autumn).

20=Heartworm disease:

Heartworm disease is a serious disease that results in severe lung disease, heart failure, other organ damage, and death in pets, mainly dogs, cats, and ferrets. It is caused by a parasitic worm called Dirofilaria immitis. The worms are spread through the bite of a mosquito.

21=Body wall of tabulations:

Body Wall: Turbellarians have an epidermis that is exposed to the outside world. The epidermis may have cilia or microvilli. Between the epidermis and the mesodermally derived tissues is a basement membrane. Under the basement membrane lies an outer layer of circular muscle and an inner layer of longitudinal muscle. Between their dorsal and ventral surfaces these organisms have muscles that lie dorsoventrally and obliquely. There are also parenchymal cells that are located between the longitudinal muscles and the gastrodermis.
The endodermally derived gastrodermis is the inner most tissue layer, it is composed of single layer of cells. The gastrodermis functions in secreting enzymes that help in digestion, and the gastrodermis also absorbs the products of digestion.

22=Method of copulation:

Sexual intercourse, or copulation, is the deposition of sperm into a female via a male intromittent organ. In humans, the intromittent organ is the penis, and sperm are deposited into the vagina, where they make their way to towards the uterus to fertilize an egg.

23=Oligochaetes:

Oligochaete worms have long, segmented, tubular bodies, giving them the appearance of a piece of thick spaghetti. They can range in length from just a few millimeters to over 10 feet! You won't find a head or any limbs on these guys either, but they can still get around pretty well by peristalsis. This is when the body moves by contracting and relaxing its segments so that a wave-like motion pushes it along.

Oligochaetes are also simultaneous hermaphrodites, which means that they are both male and female at the same time. This doesn't mean that they can self-fertilize, but it does mean that they can mate with just about any other member of their species they come across. That's pretty efficient.They don't need a respiratory system because gas exchange occurs through the body itself.

24=Mastax:

The mastax is a muscular organ. It grinds food. The inner walls of the mastax contain several sets of jaws called trophi. The trophi have different structures.

25=Deuterostome:

Deuterostome originates from the Greek word meaning “mouth second”. In deuterostomes, the anus develops first and the mouth develops later. Enterocoely: In deuterostomes, the mesoderm forms as invaginations of the developed gut that pinch off, forming the coelom. This is called the enterocoely. Some major clades: There are three major clades of deuterostomes i.e., Chordata (vertebrates and their kin), Echinodermata (starfish, sea urchins, sea cucumbers, etc.) and Hemichordata (acorn worms).

26=Pattern of embryonic cleavage:

The pattern of embryonic cleavage particular to a species is determined by two major parameters: the amount and distribution of yolk protein within the cytoplasm, and factors in the egg cytoplasm that influence the angle of the mitotic spindle and the timing of its formation.

27=Blastomeres:

a blastomere is a type of cell produced by cleavage (cell division) of the zygote after fertilization and is an essential part of blastula formation.

28=Fate of blastopore:

The fate of the blastopore was traditionally used as a character for building taxonomic trees, separating protostomes (in which the blastopore becomes the opening to the mouth) from deuterostomes (in which the mouth forms separately from the blastopore, and the latter often becomes the anus).

29=Formation of mesoderm:

Gastrulation is an early stage of development during which an embryo, then a single-layered ball of cells called a blastula, reorganizes itself into a three-layered ball of cells, called a gastrula. During this process, the primary germ layers, endoderm and ectoderm, interact to form the third, called mesoderm.

30=Formation of coelom:

In protostomes, the coelom forms when the mesoderm splits through the process of schizocoely, while in deuterostomes, the coelom forms when the mesoderm pinches off through the process of enterocoely. Protostomes undergo spiral cleavage, while deuterostomes undergo radial cleavage.

31=Arrangement of coelomic cavity:

Development. Coelom is the mesodermally lined cavity between the gut and the outer body wall. During the development of the embryo, coelom formation begins in the gastrulation stage. The space between the parietal layer and the visceral layer is known as the coelom or body cavity.

32=Larval type:

Larvae appear in a variety of forms. Many invertebrates (e.g., cnidarians) have a simple ciliated larva called a planula. Flukes have several larval stages, and annelids, mollusks, and crustaceans have various larval forms. The larval forms of the various insects are called caterpillars, grubs, maggots, and nymphs.

33=Larva ciliary bands:

The larvae of marine invertebrates generally have ciliary band(s) comprising densely packed cilia. Echinoderms have two typical larval forms, the dipleurula and doliolaria types, each of which has characteristic ciliary band patterns.

34=General Characteristics of phylum cnidarian:

- Radial or biradial symmetry.
- They have body walls of ectoderm and endoderm separated only by mesogloea; a single body cavity (enteron) with a mouth but no separate anus;
- a simple nerve net;
- No separate excretory or circulatory systems.
- Nematocysts are present.
- Solitary or colonial, and they are often polymorphic with alternate polyps and medusa.

35=Trichinosis:

The young larvae encyst in the skeletal muscles and remain infective for many years. The disease this nematode is called trichinosis.

36=Schizocoel hypothesis:

Coelom is formed by the splitting of mesoderm i.e. protostomes. It suggests that a triploblastic acoelomate (flatworm) body form is the ancestor of the coelomate.

37=Polyp and Medusa:
Polyp:

Polyp is a sessile life cycle stage of species who belong to phylum cnidaria. Famous examples of polyp are sea anemones and adult corals. Polyp is formed with a mouth surrounded with tentacles, referred to as a head and head is attached to the bottom with a foot-like disk. Direction of mouth and tentacles face towards the water. Mode of reproduction in polyp is either sexual or asexual.

Medusa:

Medusa is a life cycle stage of the species who belongs to cnidaria phylum. One of the most common examples of species having a medusa life cycle is Hydrozoa or jellyfish. External appearance of medusa is bell shaped and has capability of undergoing muscular contractions which enables the medusa to swim. Several types of tentacles like photoreceptors, gravity-sensing statocytes surround the bell. Mode of reproduction in medusa is sexual.

38=Phylum Nematoda:

The Nematodes present in the soil feed on the bacteria, fungi, and other nematodes, and play an important role in nutrient recycling. They also attack the insects and control the pests. However, they cause severe damage to plants. They feed on the plant roots and reduce the nutrient uptake and stress tolerance of the plant.

39=Stages of ecdysis:

- Enzymes, secreted from hypodermal gland, begin digesting the old procuticle to separate the hypodermis and exoskeleton.
- New procuticle and epicuticle are secreted.
- the old exoskeleton splits open along predetermined ecdysal lines when the animal stretches by the air or water intake; pores in the procuticle secrete additional epicuticle.
- Finally, calcium carbonate deposits or sclerotization harden the new exoskeleton.

40=Advantages of coelom:

- The organs like that of the digestive tract need more space to grow.
- Some organs like gonads need more space only during the breeding season. ...
- Coelom also allows the formation of well-organized circulatory system with an efficient heart to draw blood from vessels.

41=Pinocytosis

The process in which food is engulf in form of liquid.

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