

Class Objectives: Students should focus on the following four objectives (especially the first two):

1. Have the taxonomic framework (the names of a phylum, its classes, and sometimes subclasses and orders) and the characteristics of each taxon **memorized**. [**Taxonomic Scheme** and **Taxonomic Characteristics**]
2. Be able to visualize (or draw) a characteristic animal of each important taxon, and name the anatomical parts and their function for the various organ systems. [**Structure - Function**]
3. Identify evolutionary sequences within the history of animals groups so that one can state which taxon is more primitive than another, or which structure is more recently evolved (advanced) than another. [**Evolutionary Sequences**]
4. Identify structures that have undergone modification to be specialized for particular ecological conditions. [**Ecological Adaptations**]

Exam Format: The above four areas will be tested using a "multiple true/false" format. Each question has five related parts, and the student gives a T/F response to each part (See the following examples). In this format, the student can receive some level of partial credit not available in a conventional multiple choice question.

Sample Questions: The intent here is not as a pre-exam with which to test your information base, but to provide examples of how the information will be structured, so that you may prepare more efficiently.

In each of the following questions, mark which of the five options are correct [true= (1 or A)] and which are incorrect [false= (2 or B)] on your opscan sheet.

In the following pairs, the **second term** is a **taxonomic subset** of the first: (1) Gastropoda - Mollusca; (2) Cnidaria - Anthozoa; (3) Porifera - Hydrozoa; (4) Nematomorpha - Trematoda; (5) Platyhelminthes - Cestoda..

[this question examines what you know about **Taxonomic Scheme**]

The characteristics mutually shared by Platyhelminthes and Nematoda are: (6) three germ layers; (7) coelome; (8) absence of a true circulatory system; (9) complete digestive tract; (10) endoparasitic species.

[this question examines what you know about **Taxonomic Scheme** and **Taxonomic Characteristics**]

The trait correctly paired with a taxonomic group which exhibits the trait is: (11) radial symmetry - Cnidaria; (12) pseudocoelous - Gastrotricha; (13) planula larvae - Nematoda; (14) indeterminate cleavage - Mollusca; (15) totipotent capabilities - Porifera.

[this question examines what you know about **Taxonomic Characteristics**]

The characteristic correctly paired with a taxonomic group which exhibits the trait is: (16) detorsion - Cephalopoda; (17) torsion - Gastropoda; (18) parthenogenesis (amictic females) - Rotifera; (19) anal gills - Opisthobranchia; (20) possible metamerism - Monoplacophora.

[this question examines information on **Taxonomic Characteristics** below the phyla level]

The pair of terms in which the **first** term is believed to have first occurred **before** the **second** term is: (21) heterotrophs - autotrophs; (22) eukaryotes - prokaryotes; (23) terrestrial life forms - aquatic life forms; (24) aerobic respiration (aerobes) - anaerobic respiration (anaerobes); (25) asexual life forms - sexual life forms.

[an **Evolutionary Sequence** question]

Sessile life forms are associated with: (26) Anthozoa; (27) being monocious; (28) filter feeding; (29) collar cells; (30) Kinorhycha.

[combination of **Ecological Adaptation, Structure - Function, and Taxonomic characteristics**]

Parasitic life forms are associated with: (31) Monogenea; (32) mastax; (33) cercaria; (34) Turbellaria; (35) proglottid.

[combination of **Ecological Adaptation, Structure - Function, and Taxonomic characteristics**]

Here is a sample set of exam questions. Consider where the questions are drawing the requested information. First, you need to know taxonomic structure. Then you need to know the characteristics of the various taxonomic groups. Next the structure - function of some typical creatures of the taxonomic groups. Last, some information about Primitive-to-more-advanced sequences. Have fun. Try making up your own questions. It is a challenge to see how much one can learn.

General Zoology, Sample Test

Instructions: In each of the following questions, mark which of the five options are correct [**true = (1)**] and which are incorrect [**false = (2)**] on your opscan sheet.

The characteristics shared by **both** aschelminthes and molluscan species are: (1) radial symmetry; (2) coelome (any kind); (3) an open circulatory system; (4) triploblastic; (5) embryonic blastopore develops into the anus of the adult.

Hookworm infection occurs in humans by: (6) ingesting eggs; (7) eating improperly cooked pork; (8) eating improperly cooked fish; (9) swimming with infected snails; (10) walking barefooted on infected ground.

Ascaris infection occurs in humans by: (11) eating under-cooked sheep; (12) ingesting eggs; (13) eating raw fish; (14) walking barefooted on infected ground; (15) improper disposal of feces.

If you were told that a moluscan bivalve species were a specialized filter feeder, you would expect the species to have: (16) an odontophore; (17) bipectinate gills; (18) reduced mantle cavity; (19) reduced style; (20) large population of cilia on its gill filaments.

The correct associations between structure and function are: (21) periostracum - respiration; (22) prostomium - digestion; (23) redia - reproduction; (24) osphradium - excretion; (25) flame cell - thermoregulation.

In most cases, biologists view parasites as examples of: (26) evolutionarily primitive life forms as compared with related species groups; (27) reductionism; (28) reproductive failures; (29) symbiotic commensalism; (30) highly specialized.

The pairs where the cell type or structure is associated with the correct taxon is: (31) choanocyte - Porifera; (32) mesenchyme - Platyhelminthes; (33) contractile epithelium - Nematoda; (34) carnivorous life forms - Porifera; (35) leuconoid life forms - Porifera.

With very few exceptions, molusca and Rotifera both have in common: (36) gills for gas exchange; (37) parthenogenic reproduction; (38) an open circulatory system; (39) a coelome; (40) spiral cleavage.

In each of the following pairs, the **second** taxon is a **subset** of the first taxon is: (41) Polyplacophora - Monoplacophora ; (42) Cnidaria - Anthrozoa; (43) Porifera - Scaphopoda; (44) Platyhelminthyes - Kinorhyncha; (45) Protobranchia - Pulmonata.

In the following pairs of taxa, the **first** is considered **more primitive** than the second: (46) Rotifera - Porifera; (47) Gastrotricha - Hydrozoa; (48) Gastropoda - Cephalopoda; (49) Turbellaria - Cestoda; (50) Lamellibranchia - Scyphozoa.

During the history of life on Earth, the **first** of each pair of events or life forms appeared **before** the

second: (51) oxygen in the atmosphere - Oxygen in the seas; (52) first stromatolites - major banded iron formations; (53) first eukaryotic cells - first prokaryotic cells; (54) photosynthesis - aerobic respiration; (55) sexual reproduction - cloning.

The pairs of structures where both members of a pair are involved with the same kind of function are: (56) choanocyte - nutritive cell; (57) radula - mastax; (58) rhopalium - siphonoglyph; (59) rhabdites - opisthaptor; (60) pedal glands - interstitial cells.

characteristics mutually shared by Platyhelminthes and Nematoda are: (61) three germ layers; (62) coelome; (63) absence of an excretory system; (64) complete digestive tract; (65) enterocoelous.