BIO 2135 - Animal Form and Function
Midterm examination
Worth either 10% or 15% of your final grade

Friday, February 8, 2013

a) Place your name and student number in the space provided below. Be sure that your name is on the top of each page because the exam **will** be separated to facilitate marking

b) Circle the lab section for your lab. This information is used to get the exam back to you

c) Check to be sure that your exam is complete with a total of 13 pages including this one

d) Answer all questions in the space provided on the exam. Do not transfer answers to the back of the page

e) The exam is out of 90 pts.

Name:_____

Student No:_____

Circle your lab section:

Tue: A1-BSC312, A5-BSC330.

Wed: A2-BSC312, A6-BSC330

Thu: A3-BSC312, A7-BSC330

Fri: A4-BSC312, A8-BSC330

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Name:..... Student Number: .....

21 pts Part 1. Briefly explain what each of the following biological terms means. Where possible include an example in your definition from a group or an organism to which the term applies.

Blastopore

Parazoa

Autapomorphy

Epitheliomuscular cell

Paraphyletic

Porocyte

Synkaryon

20 pts Part 2 Answer each of the following multiple choice questions by placing an X in the space to the left of the correct choice. There is only one correct answer for each

2.1 Starting with the first in the list which is the correct sequence for the fluke life cycle (not all of the stages may be in the list – just be sure that they are in the right order)

_____A. Metacercaria, redia, Sporocysts, Adult, Cercaria

_____B. Cercaria, Adult, redia, Metacercaria, egg

_____C. Metacercaria, Egg, Miricidium, Redia, Cercaria

_____D. Redia, Egg, Cercaria, Adult, Sporocyst.

2.2 A bryozoan's statoblast is part of which functional system?

_____A. Digestive

_____B. Respiratory

_____C. Reproductive

_____D. Circulatory

_____E. Nervous and sensory

2.3 The simple light detective structures in free living flatwormss are called

_____A. Eye spots

_____B. Auricles

_____C. Statocyts

_____D. Chemoreceptors

_____E. Phasmids

2.4 Members of this deadly class of Cnidarians are referred to as the box jellies

_____A: Hydrozoa

_____B. Cubozoa

_____C. Anthozoa

_____D. Scyphozoa

_____E. Mesozoa

2.5 Which of the following is not a function of a nematocyst

_____A. Defense

_____B. Locomotion

_____C. Trapping prey by filtration

_____D. Paralyzing prey before it is swallowed

_____E. Paralyzing prey after it is swallowed

2.6 Structures found in tapeworms but not in any of the other flatworms are:

_____A. proglottids

_____B. scolex

_____C. strobilla

_____D. All of the above

2.7 This type of sponge architecture has oscula but no spongocoel

_____A. Asconoid

_____B. Leuconoid

_____C. Syconoid

_____D. Asteroid

2.8 A free living flatworm's mouth is located on the _____ surface of the animal.

_____A: oral

_____B: ventral

_____C: aboral

_____D: dorsa

2.9 The first larval stage in the life history of a fluke is the

_____A. Redia

_____B. Miracidium

_____C. Cercaria

_____D. Sporocyst

_____E. Oncomiracidium

2.10 By the time a tapeworm prolottid matures and is fully gravid it is full of

_____A. Undigested food

_____B. Water expulsion vesicles

_____C. Eggs

_____D. Gametes

2.11 Syconoid sponges have choanocytes only in or on

_____A. Their pinacoderm

_____B. Their ventral surface

_____C. Radial canals

_____D. Flagellated chamgers

_____E. Spongocoel

2.12 This structure allows for the transfer of nutrients between zooids in hydrozoan colonies.

_____A. Coanosrac

_____B. Perisarc.

_____C. Funiculus.

_____D. Digestive ceacum

_____E. None of the above.

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2.13 In free living flatworms, when rod like contents of these cells swell and hydrate they form a protective, distatesful mucous covering for the body

_____A. Endocytes

_____B. Mucocytes

_____C. Ectocytes

_____D. Rhabdites

_____E. Flame cells

2.14 This opening at the top of a sponge is found in all three architectures.

_____A. Osculum

_____B. Atriopore

_____C. Ostia

_____D. Mouth

_____E. Anus

2.15 Excretion and gas exchange in sponges are accomplished by

_____A. Active transport

_____B. Simple diffusion

_____C. Contractile vacuoles

_____D. Nephridia

_____E. Osmosis

2.16 Organisms in the Supergroup Amoebozoa use these (this) for locomation.

_____A. Cilia

_____B. Pseudopodia

_____C. Hydrostatic skeleton

_____D. Flagella

_____E. None of the above

2.17 The thin flat cells covering the outer surface of sponge

_____A. Choanocytes

_____B. Pinacocytes

_____C. Amebocytes

_____D. Sclerocytes

_____E. Archeocytes

2.18 In diploblastic organisms the two embryonic layers are:

_____A. Mesoderm and endoderm

_____B. Mesoderm and mesoglea

_____C. Ectoderm and mesoderm

_____D. Mesoglea and blastoderm

_____E. Ectoderm and endoderm

2.19 This part of the aquiferous system is lined with choanocytes in asconoid sponges but missing these cells in the syconoid form.

_____A. incurrent canal

_____B. radial canals.

_____C. flagellated chambers.

_____D. spongocoel.

_____E. excurrent canal.

2.20 Sponge gemmules contain masses of:

_____A; Archeocytes

_____B. Porocytes

_____C. Choanocytes

_____D. Sclerocytes

_____E. Calcium carbonate cells

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25 pts Part 3: Complete the following sentences using the appropriate terms. Place the term in the space in the sentence or at the end of the sentence.

3.1 Embedded in the epidermis, these protect a free-living flatworm from predation. _____

3.2 In the deepest ocean depths, the shells of amoebas can only be made of this. _____

3.3 This dormant sponge structure helps a freshwater sponge get through the winter. _____

3.4 Microtubular molecular motors can be distinguished from each other by their movement relative to this structure. _____

3.5 Myosin motors travel along strands of this protein. _____

3.6 When comparing the length of undulipods flagella are _____.

3.7 In this Cnidarian class you'll never find any sign of a polyp. _____

3.8 These delicate minute anthozoans create a unique marine environment.

3.9 The first flagellum was used for this process. _____

3.10 Most species of flatworms have this type of life cycle. _____

3.11 Describes the cycle of larval amplifications by the malarial parasite inside the human host. _____

3.12 When the malarial mosquito bites it injects this stage of malaria into the human host. _____

3.13 These cells secrete digestive enzymes into the digestive cavity of a cnidarian. _____

3.14 Conjugation is a unique way of mixing _____material of two different ciliates.

3.15 Another name for the water expulsion vesicle is a _____ vacuole.

3.16 Instead of dorsal and ventral sides, cnidarians have oral and this surface. _____

3.17 The ancestral motile eukaryote had this number flagella. _____

3.18 Single cilia often fuse to form larger structures collectively called this type of ciliature. _____

3.19 Most of a flatworm's body mass is made of this tissue which fills the space between the epidermis and digestive tract. _____

3.20 This is the first type of cell attacked by the malaria parasite when it first enters the human host. _____

3.21 Type of molecular motor used in amoebozoan cytoplasmic streaming. _____

3.22 These pull a bryozoan's tentacles back inside its casing (Two words). _____

3.23 The protein constituent of sponge spicules. _____

3.24 The water pumping system in a sponge is also called this type of a system. _____

3.25In large colonial protists the only division of labour seen in the cells is associated with the production of these specialized cells. _____

PART 4 Starts on the next page

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24 pts Part 4: Answer 4 of the following 8 questions in the space provided. Each is worth 6 points. Do an extra question as a bonus and you could raise your marks by up to 6 points depending on how well you answer the fifth question.

4.1 Complete the following table by adding the missing taxon with the unique autoapomorphy or by providing one example of an autoapomorphy for the taxon.

Taxon	Autoapomorphic character
Cnidaria	Cnidocytes
	Planula larva
	Single axis of symmetry between the oral and aboral surfaces.
Hydrozoa	
	Ingestive, multicellar heterotrophs
Platyhelminthes	
Porifera	

4.2 Describe the structure and growth of a bryozoan colony and its individual members.

4.3 What is a protonephridium, what does it do and how does it do it?

4.4 What is the dual gland adhesive system and how does planaria, a free-living flatworm, use it to move.

4.5 The terms symplesiomorphy and synapomorphy can often refer to the same character or trait. Use the phylogeny of the Cnidaria to explain why this is. (NOTE: This question is NOT asking for the phylogeny of the Cnidaria!)

4.6 Use the cnidarian polyp and medusa to explain what a hydrostatic skeleton is and how it works in these two cnidarian morphologies.

4.7 Today, how are protostomes differentiated from deuterostomes? How has the distinction changed over the last 20 years?

4.8 Briefly describe what a metachronal wave is, which organisms use it and what is its advantage?