

BIO1130 Midterm Examination – November 10, 2012

STUDENT NUMBER: _____

Don't enter your name.

BIO 1130 An Introduction to Organismal Biology
Midterm examination
Worth either 15% or 20% of your final grade
Total points for both parts of the exam is 85 pts

Saturday, November 10, 2012

Part B: Written questions

- a) Place your name and student number in the space provided below. Be sure that your student number is on the top of each of the following pages – the exam will be separated. ONLY place your student number on the pages where indicated
- b) Answer all questions in the space provided on the exam. Do not transfer answers to the back of the page.
- c) You may use either pencil or ink for your answers.
- d) Answers as written paragraphs are preferred but point form is acceptable as long as the points are logically organized and not random statements or facts
- e) This is not an open book exam.
- f) There are five pages including this one in part B of the exam, be sure you have all five pages.
- g) Enter the multiple choice exam code in the space provided

Name: _____

Student number: _____

Multiple Choice Exam Code (MM or FF): _____



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12 pts Part 1. Briefly explain what each of the following terms means or the biological contribution made by the person. Where possible include an example in your explanation from a group or an organism to which the term or name applies.

Bikont

{Type of Protist, must place the organism in the Kingdom Protista} {with two flagella} {One flagellum for feeding other locomotion} {bikonts evolved into the algae/autotroph protists} First point must be there other to bring the score up to three.

Eukarya

Must have any three characters that define the Domain (There is no point for saying it as Domain) {Nuclear envelope with a statement that describes it – surrounds the genetic material/ creates the specialized nucleus} {Multiple linear chromosomes} {presence of an endomembrane system/organelles} {Mitochondria} {centrioles and microtubular cytoskeleton}

Lophophore

{An indication of a group that has this – this may be Bryozoa or a part of the lophotrochozoa if they use lophotrochozoa they must clearly state its name everyone but only a some of the phyla} {feeding structure of tentacles surrounding mouth – not enough to see just feeding} {Cilia on the surface trap food particles and pass them to the mouth}

Bilateral symmetry

{Symmetry is defined as a plane/line between the oral and aboral side of an animal} {Only one plane/line through the animal that will create identical halves} {There are lots of examples: we looked at annelids, flatworms, molluscs (snail, squid, clam) Arthropods, Onychophora – velvet worms....} {Animals with this symmetry have cephalization and are active with directed movement} first two must be there and third point can be from either of the last two.

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28 pts Part 2: Fill in the missing word, or provide the one word answer in the space provided at the end of the sentence. If the line is missing, add it to the end of the line.

- 2.1 Type of stone that the Cambrian fossils are found in. Shale
- 2.2 The algae in the oceans are consumed by these animals which are collectively referred to as this type of plankton. Zooplankton
- 2.3 These swellings in the roots of legume plants house the bacteria responsible for capturing atmospheric nitrogen. Nodules
- 2.4 These membrane bound intracellular structures common in eukaryote cells are missing in bacteria. Organelles
- 2.5 This is the more fluid of the two types of protoplasm found in an amoeba. Endoplasm
- 2.6 Of the two types of muscles in worms important in the function of the hydrostatic skeleton, these stretch the muscles oriented in line with the anterior to posterior axis of the worm. Circular
- 2.7 When the malarial mosquito bites it injects this stage of malaria into the human host. Sporozoite
- 2.8 Viruses often have alphanumeric designations in the case of H1N1 for example what type of molecule do the H and N refer to? Protein
- 2.9 Cell wall polymer of the fungal-like eukaryotic protists. Chitin
- 2.10 This additional circular piece of DNA is found in some bacterial cells. Plasmid
- 2.11 Water in a cnidarian polyps digestive cavity serves as this type of skeleton. Hydrostatic
- 2.12 Who came first, the bikonts or the unikonts? Unikonts
- 2.13 Process describing the ingestion of rich, dissolved, organic liquid food by protozoans. Pinocytosis
- 2.14 Number of membranous lipid bilayers surrounding the contents of a mitochondria. Two
- 2.15 This "cap" is found at the advancing edge of a pseudopod. Hyaline
- 2.16 The side of the medusa opposite the mouth is the referred to as this surface or side. Aboral

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- 2.17 Number of mass extinctions like the one at the end of the Ordovician that have happened. Five
- 2.18 With its multiple copies of the genome, this describes the macronucleus in a ciliate. Polyploid
- 2.19 This is the mobile floating, or swimming stage in the cnidarian life cycle. Medusa
- 2.20 The space between the two lipid layers of the Gram-negative bacterium. Periplasm
- 2.21 The engine for a bacterial flagellum is fuelled by the movements of these across the membrane. Protons
- 2.22 A flatworm's incomplete gut is missing this structure. Anus
- 2.23 Most echinoderms have this number of arms. Five
- 2.24. Ancestrally, the mouth of an echinoderm faced in this direction relative to the substrate to which it was attached. Up
- 2.25 The number of flagella in in algae. Two
- 2.26 The structure on a choanocyte that propels the water through a sponge. Flagellum
- 2.27 These molecular motors travel away from the structure that builds the microtubules. Kinesins
- 2.28 Cell wall polymer of the fungal-like eukaryotic protists. Chitin

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5 pts Part 3: Use the letter for the pathogen, the cause of the disease, in the first column to identify the type of pathogen that causes the disease in the second column by placing the appropriate letter in the space before the diseases. You may have to use a pathogen type twice in your answer and if there are two possible answers use the pathogen that is most precise and accurate.

Pathogen	Disease
A: Retrovirus	<u> C </u> Plague
B: Virus	<u> E </u> Hepatitis D
C: Bacterium	<u> A </u> Acquired immune deficiency syndrome
D: Protists	<u> B </u> Influenza
E: Viroid	<u> D </u> Malaria
F: Prion	

Part four of the exam is on the next page

12 pts Part 4: Answer the following two questions in the space provided.

4.1 What are the similarities and differences in the skeleton and muscle organization between an annelid, worm, and a nematode, roundworm? How does this affect the way they move? In your answer be sure that the similarities and differences are clear. When you describe either be sure that both animals are mentioned at the same time.

Similarities:

- {Both have longitudinal muscles},
- {Both use a hydrostatic skeleton}

Differences – when differences are stated there must be a comparison with both components to get the point for the answer.

- {Worms have circular and nematodes don't }
- {Worms use the fluids of a coelom and the nematodes use the fluids of the pseudocoelom}
- {Worms use a series of hydrostatic skeletons created by the repeating coeloms created by the repeating coeloms by the repeating coeloms and nematodes have only one fluid filled cavity in their hydrostatic skeleton}
- {Worms contracting boxes create accordion like movement with segments having different shapes – Nematode contracts muscle on either side causing sinusoid or whip like movement. }

4.2 How is the myosin motor used for locomotion in protists.

{In amoeboid locomotion}

{Myosin motors move along actin fibers}

{cytoplasm in two states – endoplasm (fluid) and ectoplasm (rigid)}

{Change in state caused by the polymerization of the actin fibres}

{Movement as myosin motors move along actin fibers and squeeze pushing endoplasm forward}

{Hits hyaline can change direction and turns to ectoplasm}

{Other motors will pull the cytoplasmic components in the direction of movement}

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