Practice Questions, Exam 2

The exam you will be taking for this Unit will be a standard multiple choice exam with each question having 4-5 choices and one of those being the best choice and therefore the right answer.
For example: The second letter in the alphabet is: a. A b. B c. C d. D

The practice questions below are designed to help you study and understand the material rather than to test your knowledge. That's what the actual test does. The questions below may have any number of right and wrong and better and worse choices; that is for you to figure out. For each question, try to determine which answer(s) are right and why they are right and try to determine which answers are wrong and why they are wrong. Prof Billeter will not help you with these unless you can demonstrate that YOU have actually tried to figure out the answers YOURSELF. I urge you to work in groups and to argue and debate if you disagree.

Studying for the exam requires you to use 1) the Unit Objectives 2) the class notes and powerpoints 3) the textbook readings 4) CyberEds 4) "Evolution for Everyone" 5) this practice quiz. If you just study from this practice quiz you will not be prepared.

1. Which of these gases was absent from Earth's atmosphere when life originated 3.8 billion years ago but is present in high concentrations in modern air.
   a. water vapor  b. argon  c. carbon monoxide  d. nitrogen  e. oxygen  f. carbon dioxide  g. ozone  h. C+F  i. E+G

2. A major "way of looking at the world" such as the atomic theory, cell theory, continental drift theory, etc., is a: a. theorem  b. law  c. prescience  d. hypothesis  d. paradigm  e. theory  f. more than one could be correct

3. Scientific knowledge is knowledge known through the "5" human senses. Such knowledge is said to be:
   a. empirical  b. redoubtable  c. substantiated  d. serendipitous  e. subjective  f. objective  g. more than one could be correct  h. E+F are correct, the rest are wrong

4. According to Margulis, eukaryotic cells arose from prokaryotic cells by:
   a. coprophagy  b. devolution  c. impedance matching  d. hybridization  e. heterotrophy  f. colonization  g. endosymbiosis  h. two of these  i. none of these

5. The study of fossils is called: a. petrology  b. lithology  c. paleontology  d. anthropology  e. in a certain sense, these are all correct

6. Scientists estimate the age of the earth to be about ___ years.
   a. 2.5 billion  b. 6 thousand  b. 4.5 billion  c. 10 million  d. 15 billion  e.15 million  f. 150 million  g. all of these are too small, Earth’s age is estimated in trillions of years

7. The idea that living things can arise from non-living things is called
   a. neoteny  b. parthenogenesis  c. eugenics  d. spontaneous generation  e. abiogenesis  f. biogenesis  g. pangenesis  h. technically, several of these are correct  i. none of these is correct

8. Which of these is NOT one of the 3 major unifying principles (paradigms) of biology?
   a. Life evolves.  b. all biological functions can occur only in vivo  c. biology obeys the laws of physics and chemistry.  d. all organisms are composed of cells.  e. all organisms use oxygen.  f. these are all just unsubstantiated theories

9. Which of these is an autotroph?
   a. bulldog  b. bullfrog  c. bull rush  d. Rush Limbaugh  e. tree  f. mushroom  g. cyanobacteria  h. some protista  i. all protista  j. Euglena  k. some Archaea  l. sea gull  m. sea weed

10. Choanocytes (flagellated collar cells) are a characteristic of: a. mushrooms  d. jellyfish  b. flatworms  c. sponges  e. Rotifers  f. Archaea  g. Eubacteria  h. some animals but no plants  i. two of these are correct

11. Nematocysts (cnidocytes) are a characteristic of: a. mushrooms  d. jellyfish  b. flatworms  c. sponges  e. Rotifers  f. Protista  g. Eubacteria  h. some animals but no plants  i. two of these are correct
11. The Protista are a monophyletic Kingdom.  a. true  b. false

12. The crater from the meteor that corresponds with the end of the dinosaur age is located in:  

13. In the life cycle of a jellyfish, which of these stages is the sexual stage?  
   a. polyp  b. medusa  c. planula  d. fistula  e. spermatozoa  f. Balways is A sometimes is

14. Dogs are infected with heartworms by:  
   a. mosquitoes  b. eating the eggs from soil  c. bot flies  d. dog sex

15. An itchy peri-anal region is a symptom of:  
   a. heartworms  b. pinworms  c. tapeworms  d. elephantiasis worms

16. Which of these is absent from cartilaginous fishes (Chondrichthyes)?  
   a. mitochondria  b. swim bladder  c. lateral line  d. Ampullae of Lorenzini  e. water vascular system  f. circulatory system  g. paired fins  h. segmentation  i. radial symmetry  j. mesoderm  k. bones  l. cnidoblasts/nematocysts  m. pseudocoelom

17. Fungi do not carry out photosynthesis, they are heterotrophic.  a. True  b. False  c. both actually

18. Chitons, slugs, clams, and squids belong to phylum:  

19. Which of these phyla has a pseudocoelom?  

20. Which of these is a baleen whale?  
   a. dolphin  b. blue whale  b. porpoise  c. killer whale  d. sperm whale  e. humpback whale

21. The exoskeleton of insects, spiders and shrimps are composed of the structural carbohydrate:  
   a. chitin  b. silica  c. glycogen  d. arachodonic acid

22. Which of these has 3 major body regions, six legs and breathes with spiracles?  

23. Birds are most closely related to:  
   a. bats  b. squirrels  c. pterodactyls  d. dinosaurs  e. rodents  f. bees

24. The mascot of the new Southern Maryland Blue Crabs baseball team is a:  
   a. sponge  b. pinworm  c. clam  d. Aves  e. osprey  f. crustacean  g. Arthropod

25. George Washington is a:  

26. Phylogenetic classification is based on ___ relationships.  
   a. spatial  b. ecological  c. evolutionary  d. a combination of all of these

27. Which of these is not PRODUCED by photosynthesis?  
   a. glucose  b. CO₂  c. O₂  d. ATP  e. sugar  f. water  g. light

28. Which one of these does not belong with the others?  
   a. mollusk  b. decomposer  c. heterotroph  d. consumer  e. autotroph  f. E. coli  g. sponge

29. Prokaryotic cells lack:  
   a.. DNA  b. RNA  c. nucleus  d..cell membrane  e. Cell wall  f. flagella  g. enzymes  h. ribosomes

30. Which kingdom is eukaryotic, and heterotrophic?  

31. The K/T rock stratum that marks the end of the dinosaur age is rich in the element:  
   a. thorium  b. kalium  c. francium  d. aluminum  e. glucose  f. enzymes  g.. ozone  h. iridium

32. The K/T rock stratum that marks the end of the dinosaur age is found in rock layers that are about ___ years old.  
   a. 3.8 billion  b. 2.5 billion  c. 10 million  d. 20,000  e. 2.5 million  f. 180 thousand

33. Leeches and earthworms are in the phylum:  
34. Which of these is a predatory carnivore?
   a. centipede   b. millipede   c. sponge   d. clam   e. Protista   f. Animalia

35. Lyme disease is caused by ___ and transmitted to humans by ____.
   a. bacteria; eating limes   b. a virus, unsafe sex   c. virus, eating undercooked fish
   d. bacteria, ticks   roundworms: mosquitos

36. Morphology is the study of metabolism and biochemistry of organisms.
   a. true   b. false   c. one is right and the other is false

36. The water-vascular system is a characteristic unique to the Phylum:
   e. Porifera   f. Echinodermata   g. Chordata   h. Porifera   i. two of these

37. The experiments that proved that spontaneous generation of microorganisms does NOT occur in broth were conducted by:

38. Lampreys and hagfish are:
   a. reptiles   b. cecilians   c. jawless fish   d. cartilaginous fish
   e. bony fish   f. insects

39. The jaws of fish evolved from:
   a. ribs   b. clavicles   c. forelimbs   d. gill arches   e. eye sockets
   f. modified ear bones

40. Which of these phyla is not a protostome (blastopore becomes the mouth)?
   e. Chordata   f. Protista

41. Which of these is endothermic (homeothermic, warm-blooded)?
   a. birds   b. mammals   c. marsupials   d. lizards
   e. caecilians   f. Archaeopteryx

42. Most sponges, earthworms and flatworms are ___, meaning they have both male and female organs at the same time.
   a. larvae   b. hermaphrodites   c. biperforate   d. gonorchistic

43. Animals with a true coelom (eucoelom) have a body cavity between their gut and body wall that is completely lined with tissue derived from:
   a. endoderm   b. mesoderm   c. ectoderm

44. Which of these is not a characteristic of the Phylum Chordata?
   a. notochord   b. dorsal hollow nerve cord   c. pharynx with gill slits
   d. radial symmetry

45. The largest (most numerous) group of backboned (vertebrate) animals is the:
   a. Insecta   b. bony fishes   c. Mammalia   d. Amphibia
   e. Nematoda   f. amphibians   g. Aves

46. In the land egg of reptiles and birds which of these membranes wastes and works as a respiratory surface?
   a. amnion   b. chorion   c. allantois   d. virionic sac
   e. yolk sac   f. A+B

47. Many of the Archaea are:
   a. vertebrates   b. extremophiles   c. eukaryotic   d. prokaryotic
   e. multicellular

48. Which of these is not a Monotreme (egg-laying) mammal?
   a. platypus   b. spiny Echidna   c. opossum   d. Aves

49. The single most important evolutionary advancement between the Amphibia and the reptiles that permitted a permanent colonization of land and freedom from living in water was:
   a. hair   b. amniotic eggs   c. lungs with diaphragm
   d. exoskeleton   e. endoskeleton

50. Pakicetus, Archicetus, and Balenosaurus are ancestors of modern:
   a. birds   b. whales   c. insects   d. amphibia
   e. horses   f. none of these

51. An “explosion” of evolution took place in the ___ Period producing almost all of the major groups of animals that exist today:
   e. Cambrian   f. Archaen   g. K/T Boundary

52. The “missing link” fossil connecting the fishes and the amphibia was found in 2004 in Canada is called:
   e. Australopithecus

53. Mollusca are characterized by a shell, mantle, foot and:
   a. radula   b. spiralce   c. placenta   d. none of these
   e. 2 of these

54. Which phylum contains invertebrates and has an exoskeleton?
   e. Arthropoda   f. two of these
55. Sessile animals:
   a. always reproduce asexually  
   b. don’t move much, if at all  
   c. can fly to escape danger or find food  
   d. are usually active only at night  
   e. usually are active only during the day  
   f. are filter feeders

56. Birds are direct descendants of the ____ and still maintain many ____ - like characteristics.
   a. amphibians, frog  
   b. dinosaurs; fish  
   c. mammals; rodent  
   d. fishes; shark  
   e. none of these is a good answer

57. Coelocanths are a type of:
   a. legless amphibian  
   b. flightless bird  
   c. lobe-finned fish  
   d. egg-laying mammal  
   e. pig-like whale

58. Most of the derived characteristics exhibited by birds are adaptations for:
   a. singing  
   b. laying eggs  
   c. vision  
   d. feeding  
   e. flight  
   f. ectothermy

59. Amphibians can breathe through their skin.  a. true  
   b. false  
   c. usually true  
   d. never true  
   e. almost all breathe with gills

60. Which of these is found in bony fishes (Osteichthyes) but not in cartilaginous fishes (Chondrichthyes)?
   a. swim bladder  
   b. endoskeleton  
   c. segmentation  
   d. electricity sensors (Ampullae of Lorenzini)

61. Which of the following is not part of the cell theory?
   a. all cells come from pre-existing cells  
   b. cells are the smallest working units of living things  
   c. all living things are composed of cells  
   d. all cells have cell walls  
   e. all cells are made up of the same parts.  
   f. these are all correct

62. Which of these is NOT true of macrophages?
   a. they located throughout the bloodstream  
   b. they are capable of ameboid movement  
   c. they are a type of red blood cell  
   d. they are a type of white blood cell  
   e. they are specialized cells and are capable of phagocytosis  
   f. they lack a nucleus when they are mature

63. Which of these stores digestive enzymes?
   a. nucleus  
   b. mitochondrion  
   c. nucleosome  
   d. ribosome  
   e. aquesome  
   f. contractile vacuole  
   g. lysosome  
   h. two of these are correct

64. Your stomach is a(n):
   a. organelle  
   b. organ system  
   c. tissue  
   d. vacuole  
   e. ecosystem  
   f. organ

65. What material did Robert Hooke look at with his microscope when he coined the term “cell.”
   a. garden peas  
   b. blood  
   c. pond organisms  
   d. human skin  
   e. cork  
   f. mica  
   g. urea

66. Which of these is not found in an animal cell?
   a. cell membrane  
   b. nucleus  
   c. cell wall  
   d. nucleolus  
   e. plastid  
   f. two of these are correct

67. Which of these is the energy carrying molecule of cells?
   a. DNA  
   b. RNA  
   c. ATP  
   d. AFU  
   e. PDA

68. Cell respiration with the release of energy from food molecules takes place in:
   a. Golgi apparatus  
   b. nucleolus  
   c. endoplasmic reticulum  
   d. mitochondria  
   e. cytoplasm  
   f. ribosomes  
   g. chloroplasts

69. Protein synthesis (making proteins from amino acids) takes place on/in:
   a. mitochondria  
   b. nucleolus  
   c. ribosomes  
   d. mitochondria