

**Instructions:** There are **64** questions. You may consider 4 *of them as extra credit*. Write down the **best** answer for each one. Please make sure that you fill out your scantron correctly. In case of discrepancy, the answer on the scantron will be considered your answer. When you're finished, please hand in your scantron. **Good luck!**

**Material covered by exam I:**

- \_\_\_\_ 1) Which is not one of the four most important elements in the body:  
a) oxygen    b) hydrogen    c) nitrogen    d) carbon    e) iron
- \_\_\_\_ 2) A deficiency of iodine causes:  
a) tetanus    b) scurvy    c) goiter    d) tuberculosis    e) malaria
- \_\_\_\_ 3) Sodium and chloride come together to make up:  
a) sugar    b) iodine    c) proteins    d) table salt    e) water
- \_\_\_\_ 4) If sodium gives an electron to chlorine, sodium is now:  
a) positively charged    b) negatively charged    c) neutral
- \_\_\_\_ 5) Compared to pH 9, a solution at pH 10 has how many times as many hydrogen ions?  
a) twice    b) half    c) ten times    d) 1/10<sup>th</sup> as many    e) impossible to tell
- \_\_\_\_ 6) A substance made up **only** of carbon and hydrogen is a/an:  
a) carbohydrate    b) protein    c) hydrocarbon    d) nucleic acid
- \_\_\_\_ 7) Fructose is a:  
a) disaccharide    b) polysaccharide    c) monosaccharide    d) amino acid
- \_\_\_\_ 8) An example of a polysaccharide:  
a) fructose    b) glucose    c) corn oil    d) cellulose    e) protein
- \_\_\_\_ 9) A fat that is so bad that it has been banned in many countries and some cities in the U.S.:  
a) saturated fats    b) unsaturated fats    c) partly hydrogenated vegetable oils
- \_\_\_\_ 10) Bacteria are:  
a) eukaryotes    b) prokaryotes    c) none of the above
- \_\_\_\_ 11) Not found in animal cells:  
a) nucleus    b) Golgi apparatus    c) Central vacuole    d) smooth E.R.    e) ribosomes
- \_\_\_\_ 12) A form of movement found in human body cells:  
a) pseudopodia    b) flagella    c) cilia    d) all of the above are found in humans  
e) none of the above are found in humans
- \_\_\_\_ 13) True or false: The energy a tank of gasoline is destroyed as you drive your car:  
a) True    b) False

- \_\_\_ 14) A competitive inhibitor fits into which part of an enzyme?  
a) the releasing site    b) the fitting site    c) the active site    d) the reacting site

**Material covered by exam II:**

- \_\_\_ 15) Solution A has 5% salt, solution B has 7% salt:  
a) solution A is hypertonic    b) solution B is hypertonic  
c) solution A is isotonic    d) impossible to tell
- \_\_\_ 16) The Krebs cycle produces:  
a) NADH    b) ATP    c) oxygen    d) all of the above    e) a & b
- \_\_\_ 17) The color least useful to plants is:  
a) red    b) blue    c) green    d) yellow    e) violet
- \_\_\_ 18) An organisms with only one chromosome:  
a) human    b) dog    c) bacteria
- \_\_\_ 19) A human cell that is ready to divide has how many chromosomes?  
a) 1    b) 2    c) 23    d) 46    e) 92
- \_\_\_ 20) Metaphase describes a cell where:  
a) chromosomes are not visible  
b) chromosomes are lined up in the middle of the cell  
c) chromosomes have separated and are moving to opposite ends of the cell  
d) none of the above
- \_\_\_ 21) The checkpoint that determines if a cell will divide again is the:  
a) G<sub>1</sub> checkpoint    b) G<sub>2</sub> checkpoint    c) M checkpoint    d) Q checkpoint
- \_\_\_ 22) Bone cancer starts in the:  
a) liver    b) brain    c) small intestine    d) bones    e) blood
- \_\_\_ 23) Humans have how many pairs of autosomes (careful, "autosomes" is important here):  
a) 22    b) 23    c) 44    d) 46    e) 92
- \_\_\_ 24) Crossing over happens during:  
a) Meiosis I    b) Meiosis II    c) Meiosis III
- \_\_\_ 25) Tetrads are visible during:  
a) interphase    b) anaphase    c) anaphase II    d) metaphase I    e) metaphase II
- \_\_\_ 26) An individual that is XYY is anatomically (and in every other way)  
a) male    b) female    c) impossible to tell
- \_\_\_ 27) If we do the same thing as Mendel and use pure breeding white pea flowers and pure breeding purple pea flowers, our F<sub>1</sub> generation will be:  
a) all purple    b) all white    c) 3/4 purple and 1/4 white    d) 3/4 white and 1/4 purple
- \_\_\_ 28) True or false: if two genes are on **the same** chromosome we have "independent assortment":  
a) True    b) False

- \_\_\_ 29) Following the example in class, if a deaf boy (deaf is recessive) is born of two normal parents:  
a) both parents must be homozygous for the dominant allele/trait  
b) both parents must be homozygous for the recessive allele/trait  
c) both parents must be heterozygous  
d) one parent must be homozygous for the dominant allele/trait, the other homozygous for the recessive allele/trait

**Material covered by exam III:**

- \_\_\_ 30) You cross a white flower with a dark blue flower. All the offspring are light blue. This is an example of:  
a) epistasis    b) incomplete dominance    c) co-dominance    d) dominant-recessive
- \_\_\_ 31) If one gene controls the expression of another (controls what another gene can do), this is an example of:  
a) epistasis    b) incomplete dominance    c) co-dominance    d) dominant-recessive
- \_\_\_ 32) A genetic disease that affected the royal houses of Europe, particularly the Russian Czars:  
a) Tay-Sachs    b) Cystic fibrosis    c) PKU    d) Hemophilia    e) Dwarfism
- \_\_\_ 33) Thymine is found in:  
a) mRNA    b) iRNA    c) tRNA    d) DNA    e) QNA
- \_\_\_ 34) The start sequence (start codon) for all proteins is:  
a) AAA    b) GUA    c) AUG    d) UUU    e) RRR
- \_\_\_ 35) Sickle cell anemia is an example of what kind of mutation:  
a) base substitution    b) base addition    c) base deletion    d) base inversion
- \_\_\_ 36) Bacteria can exchange genetic information using:  
a) proteins    b) amino acids    c) plasmids    d) reverse transcriptase
- \_\_\_ 37) Malthus was responsible for which of the following ideas:  
a) uniformitarianism    b) that newer fossils are usually above older fossils  
c) natural selection    d) that too many people are the cause of much misery in the world  
e) that the world is much older than previously thought
- \_\_\_ 38) Darwin trivia question: Darwin is buried in:  
a) the National Cathedral    b) St. Paul's cathedral in London    c) Westminster Abbey  
d) a small churchyard in the English countryside    e) Italy
- \_\_\_ 39) The common ancestor of birds and bats did not have a wing. The wing is:  
a) homologous    b) analogous    c) impossible to tell
- \_\_\_ 40) Modern corn is the result of:  
a) natural selection    b) sexual selection    c) artificial selection    d) inverse selection
- \_\_\_ 41) Sickle cell anemia is found more often in areas with:  
a) tuberculosis    b) AIDS    c) malaria    d) tetanus    e) typhoid

- \_\_\_ 42) Allopatric speciation refers to speciation that takes place:  
a) in the same area    b) in different areas
- \_\_\_ 43) For Hardy-Weinberg equilibrium, all of the following are needed except:  
a) large population size    b) random mating    c) no mutations  
d) no natural selection    e) there are no exceptions on this list
- \_\_\_ 44) The taxonomic category between Class and Order:  
a) Genus    b) Suborder    c) Infraclass    d) Phylum    e) Superfamily
- \_\_\_ 45) True or false: fungi are members of the same “kingdom” as bacteria:  
a) True    b) False

***New material:***

- \_\_\_ 46) Allows for greater movement in our arms (pick **best** answer):  
a) clavicle    b) sternum    c) skull    d) tibia    e) lumbar vertebra
- \_\_\_ 47) The oldest (earliest) known human ancestor about which we're reasonably sure:  
a) *Homo erectus*    b) *Homo habilis*    c) *Australopithecus robustus*  
d) *Homo sapiens*    e) *Sahelanthropus tchadensis*
- \_\_\_ 48) *Homo erectus* is known for being the **first** human ancestor (caution: “first” is important here):  
a) found outside Africa    b) with fire    c) with tools  
d) all of the above    e) a & b
- \_\_\_ 49) A hominid (human ancestor **or** relative) that was NOT a human ancestor:  
a) *Homo erectus*    b) *Homo habilis*    c) *Australopithecus robustus*  
d) *Homo sapiens*    e) *Sahelanthropus tchadensis*
- \_\_\_ 50) True or false: The first member of the genus *Homo* (as discussed in class) is *Homo habilis*.  
a) True    b) False
- \_\_\_ 51) Choanocytes are found in:  
a) sponges    b) jellyfish    c) frogs    d) turtles    e) humans
- \_\_\_ 52) True or false: Some Cnidarians have venom powerful enough to kill humans:  
a) True    b) False
- \_\_\_ 53) Shistosomiasis infects humans and:  
a) mosquitoes    b) snails    c) frogs    d) turtles    e) sponges
- \_\_\_ 54) True or false: Many years ago a diet pill company actually sold diet pills consisting of tape worm eggs:  
a) True    b) False
- \_\_\_ 55) True or false: In later life Darwin became an expert on earthworms:  
a) True    b) False
- \_\_\_ 56) True or false: Leeches are once again used in medicine  
a) True    b) False

- \_\_\_ 57) The most successful group of animals are the:  
a) Mollusks   b) Arthropods   c) Platyhelminthes   d) Nematodes   e) Echinoderms
- \_\_\_ 58) An extinct subphylum of Arthropods:  
a) Chelicerates   b) Crustaceans   c) Uniramians   d) Trilobites
- \_\_\_ 59) True or false: Echinoderms are the invertebrate group most closely related to chordates:  
a) True   b) False
- \_\_\_ 60) A group of vertebrates without jaws:  
a) sharks   b) bony fish   c) reptiles   d) humans   e) Agnatha
- \_\_\_ 61) Amphibians can not completely leave the water because:  
a) their lungs don't function correctly   b) they can not move efficiently on land  
c) their eggs don't have a shell   d) their kidneys can not deal with excess water
- \_\_\_ 62) Dinosaurs had all of the following except:  
a) feathers   b) endothermy (warm-bloodedness)   c) herd behavior  
d) hair   e) a four chambered heart
- \_\_\_ 63) True or false: birds are probably just slightly strange dinosaurs:  
a) True   b) False
- \_\_\_ 64) True or false: ***all*** mammals have live birth:  
a) True   b) False

***Reminders:***

- 1) Please put your G-number on the scantron.
- 2) You may keep the exam.
- 2) Use the number you were assigned on the first day of class to look up your score.

***Finally, I hope you didn't find today too miserable. Have a great break!***