

ANTH A105/A303 QUIZ # 7 10 am Fall 2008 CIRCLE THE LETTER OF THE ONE BEST ANSWER:

1. Charles Darwin knew his own theory was incomplete because it lacked explanations both of how inheritance was not blending, and of why:

- A. dominant genes were more common.
- B. variation did not disappear.
- C. all mammals have nipples.
- D. human anatomy was similar to that of apes.
- E. evolution was slow and gradual.

2. Sickle cell anemia persisted in high malaria environments for thousands of years because:

- A. natural selection favored heterozygous carriers
- B. People with normal hemoglobin were not as fit there
- C. humans changed the environment through farming, and that caused an evolutionary response in humans
- D. The malaria plasmodium cannot thrive in slightly anemic people.
- E. all of the above are part of the chain of causality.

3. Human sperm are examples of:

- A. zygotes
- B. cells produced by mitosis
- C. gametes
- D. cells with 46 chromosomes
- E. diploid cells

4. Which is true about mutations?

- A. when the environment changes, beneficial mutations always occur to prevent extinction.
- B. When the environment does not change, no mutations will occur.
- C. Mutations are the source of new variations
- D. mutations that happen to adults during mitosis will be passed on to their children
- E. All of these are true

5. What is the type of cell division that produces four cells of 23 chromosomes from one cell of 46?

- A. Mutation
- B. Mitosis
- C. Protein synthesis
- D. Replication
- E. Meiosis

6. The sex of a child is genetically determined by:

- A. Genes of both mom and dad
- B. the sperm only.
- C. the ova only
- D. the environment only
- E. None of the above, it is not genetic but random 50/50

7. In one sense of the word "extinct", dinosaurs are extinct in that there are none alive today; in another sense they may not be extinct because:

- A. *Jurassic Park* is true and living dinosaurs have now been reconstructed from the DNA of fossils.
- B. crocodiles are small dinosaurs.
- C. it is likely that birds are the descendants of some dinosaurs.
- D. dinosaurs are likely to be still alive on the island that Cuvier said that they first came from.
- E. All of these

8. A dominant allele becomes recessive when:

- a. less than half of the population carry it.
- b. other alleles for the same gene become more common.
- c. it becomes less fit.
- d. it reaches the Mendelian ratio of 3:1.
- e. it's a trick question: a dominant allele never becomes recessive, even if it is rare.

9. In class we did a thought experiment about an island of rabbits and an Ice Age; which is FALSE about that example?

- A. Before the Ice Age, there was no change over thousands of years; one reason for the lack of change was that natural selection was weeding out any really odd rabbits that might be born.
- B. After the Ice Age began, the rabbits became different and better able to withstand the colder climate because natural selection was bringing out the hidden variation.
- C. Mutations always are occurring; some mutations might produce characteristics that might help the rabbits adapt to the cold (change).
- D. Natural selection was adding variation to the population of rabbits, but mutations were removing that variation.
- E. Over time, the rabbits might become a new species, unable to interbreed with the rabbits that originally populated the island.

10. Which is FALSE about PROTEINS?

- A. A different allele of a gene can produce a different version of a protein
- B. Every gene is a recipe for making a protein
- C. A protein is a molecule made up of a long string of amino acids
- D. All proteins are structural, the building blocks of cells and tissues
- E. Some proteins are enzymes and hormones, molecules that control physiology
- F. DNA stands for deoxyribonucleic acid
- G. In protein synthesis, messenger RNA carries the code outside the nucleus to where proteins are made
- H. Transfer RNA are the molecules that assemble the string of amino acids from the mRNA code

PRINT FIRST NAME _____ LAST NAME _____

BONUS Q: WHAT DO WE MEAN BY A "MENDELIAN" (OR "MONOGENIC") GENE?

