

10 pts each

1. Explain why water is so important to the life? Like enzyme reaction, cell, environment ....
2. Explain the relationship between the hypothalamus and pituitary gland in anatomy and endocrine regulation.
3. What is an X-linked gene? If the eye color gene of *Drosophila* is X-linked, red eye is dominant and white eye is recessive, explain the possible eye colors of the offsprings when the parents are mated in different genotype combinations.
4. Whether *Neanderthal* is the ancestor of modern *Homo sapiens* is still under debate. How could you solve this question? Why?
5. What ignited the Cambrian explosion?
6. Scientists worry that the current outbreak of Ebola virus in Africa may be out of control soon. In Asia, we worry that the avian flu, like H7N9, H5N1, ..., may gain the ability to infect people. The genomes of both viruses are single-stranded, negative-sense RNA. How could these viruses replicate in the host cells? Why are these RNA viruses difficult to be eliminated from the patients by chemicals?
7. What is the so-called "secondary endosymbiosis"? How does this contribute to the protist diversity?
8. What is "imprinting"? Explain why imprinting has both innate and learned components.
9. Plant cells are diverse in structure and function. What are the five major types of plant cells? Describe their names, characteristics, and functions.
10. How do plants defense against herbivores and infectious microbes?

試題隨卷繳回