

## **BiS200 Quiz#1 (2024-03-20)**

Answer in English, Closed book, 15 minutes

There will be a class after the quiz.

### **Fill-in-the-blank questions:**

1. Water-soluble molecules are referred to as ( ), molecules that are not easily dissolved in water are called ( ), and molecules that contain both water-soluble and water-insoluble parts are called ( ).
2. The enzyme responsible for transcription is ( ), and the complex that catalyzes translation is the ( ).
3. ( ) are the sequences that are spliced or removed during RNA splicing, resulting in an mRNA transcript consisting only of ( ).
4. The four primary tissue types are muscle, nervous, epithelial, and ( ).

### **Short-answer questions:**

1. Starting from the familiar image of DNA in metaphase cells, name all the structural levels through which DNA is organized within our cells.
2. What are the key enzymes involved in DNA replication in eukaryotic cells and what are their specific functions?
3. What are the three principal techniques used in recombinant DNA technology?
4. What is the function of the RNA-induced silencing complex (RISC) in the mechanism of siRNA-mediated RNA interference?
5. RISC is composed of multiple proteins. What levels of protein structure are present in this complex?