

※ 考生請注意：本試題不可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

Please read the short articles and answer questions accordingly.

1. Tissues are combinations of cells. Organs are functional unities of an organism. For instance, basic organs of the plant are leaf, stem and root. Organs consist of different tissues, the leaves for example of dermal tissue, assimilation tissue and vascular tissues. A tissue may have differently structured cell types.

1-1 What is the definition of tissues? (10%)

1-2 What is the definition of organs? (10%)

1-3 By definition, a plant leaf is a tissue or organ? (10%)

1-4 Please give 5 examples of organs in humans? (20%)

2. About three quarters of a million open-heart surgeries take place annually in the U.S. Applying sutures or staples during these procedures costs precious seconds and can cause damage. Researchers have sought adhesives that could quickly seal tissue. But currently available substances don't work in the presence of liquid or can't withstand all that forceful pumping or are toxic. Inspired by the natural adhesives, the research team created their own. It only becomes active when exposed to UV light, thus giving surgeons control. Once stuck in place, it seals tissue, remains intact in blood, and stays strong and flexible enough to withstand blood flow and the force of a heartbeat. And it's biodegradable.

2-1 What are the challenges during open-heart surgeries described here? (10%)

2-2 What is the solution proposed here for these challenges? (10%)

2-3 What is purpose of using UV light described here? (10%)

2-4 What are the advantages of the new adhesive just being created? (20%)