

1. 請閱讀以下短文，中文譯出其主旨。(20%)

Robert Edwards is awarded the 2010 Nobel Prize for the development of human *in vitro* fertilization (IVF) therapy. His achievements have made it possible to treat infertility, a medical condition afflicting a large proportion of humanity including more than 10% of all couples worldwide.

As early as the 1950s, Edwards had the vision that IVF could be useful as a treatment for infertility. He worked systematically to realize his goal, discovered important principles for human fertilization, and succeeded in accomplishing fertilization of human egg cells in cell culture dishes. His efforts were finally crowned by success on 25 July, 1978, when the world's first "test tube baby" was born. Approximately four million individuals have so far been born following IVF. Many of them are now adult and some have already become parents. A new field of medicine has emerged, with Edwards leading the process all the way from the fundamental discoveries to the current, successful IVF therapy. His contributions represent a milestone in the development of modern medicine.

2. 請閱讀以下短文，英文譯出其主旨。(20%)

人類不是唯一會農耕的動物，其他動物例如螞蟻、白蟻也會農耕。最近一篇報導發現有一種最簡單的生物，阿米巴原蟲 (*Dictyostelium discoideum*)，也會散播它們愛吃的細菌，然後收成；僅有三分之一種類的阿米巴原蟲顯現農耕的癖性。會農耕當然對生存有利，特別是在缺糧或缺美食的狀況下。當阿米巴原蟲發現食物但卻不是美食，它們會將其中美味的細菌帶走，然後原蟲農夫就開始為自己耕作。原蟲農夫絕不吃光收成，會留一些給後代享用。

3. 閱讀測驗一 (30%)。請以英文作答。

Arkansas, USA, was hit by two seemingly mysterious phenomena recently. First, thousands of dead fish washed up on the banks of the Arkansas River. Then, thousands of birds simply dropped out of the sky, dead. And if those two events were not enough to put conspiracy theorists on high alert, the news that 500 more dead birds had been found on the side of highway in Louisiana would have. The scientific explanation came swiftly by positing that a disease outbreak was responsible for the fish deaths. The state's Game and Fish Commission reported, after examining some of the birds, that the animals "showed trauma" and that the birds had "hit something very hard and had hemorrhages." There was talk of fireworks or lightning startling the birds, causing them to flee, but to stay low -- thereby flying into houses and other obstructions. However, State Wildlife Veterinarian Jim LaCour told that mass bird deaths have happened in the past due to "disease, starvation and cold fronts where birds can not get their body heat up."

Along the South Fork of the Coeur d'Alene River, the fish-eating duck with the long, slender beak and green, iridescent head dives low for its prey -- the trout, bass and pike that populate the stream. But when biologists found a dead duck near the South Fork, it was distinctly uncommon. For area waterfowl that feed on plants, lead poisoning is a more typical cause of death. Such birds, like Canada geese or mallards, ingest contaminated sediments that have leached into the South Fork over 100 years, from mines and smelters. Fish-eating birds have generally escaped such fates, because they are not directly ingesting contaminants. But the fish eaten by this bird must itself have ingested an extraordinarily high level of lead, in order for the contamination to have killed the duck. "We are seeing a higher level in the food chain that is being actually affected by lead," a Fish and Wildlife expert said.

Dead birds kept falling from sky in Sweden and Italy. Millions of dead fish were found in USA, Brazil and New Zealand. Dead crabs washed up in United Kingdom. "It sounds like a severe climatic change which is beyond their capability to handle," a professor said.

見背面

- Q1: What causes have been blamed for the deaths of fish, birds and crabs all over the world? (10%)
Q2: Which cause(s) might be the most possible one, based on your scientific background? (10%)
Q3: Explain your deduction. (10%)

4. 閱讀測驗二 (30%)。請以英文作答。

Genetically engineered crops that produce insecticidal toxins from *Bacillus thuringiensis* (*Bt*) are grown widely for pest control. However, insect adaptation can reduce the toxins' efficacy. The predominant strategy for delaying pest resistance to *Bt* crops requires refuges of non-*Bt* host plants to provide susceptible insects to mate with resistant insects. Variable farmer compliance is one of the limitations of this approach. Here we report the benefits of an alternative strategy where sterile insects are released to mate with resistant insects and refuges are scarce or absent. Computer simulations show that this approach works in principle against pests with recessive or dominant inheritance of resistance. During a large-scale, four-year field deployment of this strategy in Arizona, resistance of pink bollworm (*Pectinophora gossypiella*) to *Bt* cotton did not increase. A multitactic eradication program that included the release of sterile moths reduced pink bollworm abundance by >99%, while eliminating insecticide sprays against this key invasive pest.

- Q1: Describe the strategy of the present study using one or two sentences. (10%)
Q2: What are the advantages in the present strategy compared to the predominant one? (10%)
Q3: Make a conclusion from the present study. (5%)
Q4: Indicate the evidences from the article to support the above conclusion. (5%)