



**Concours Mathématiques et Physique, Physique et Chimie,
Biologie et Géologie & Technologie
Epreuve d'Anglais**

Date : Jeudi 05 Juin 2008 Heure : 15 H Durée : 2 H Nbre pages : 08
Barème : Part I :30, Part II: 30, Part III: 20

IMPORTANT:

1. *L'épreuve d'anglais comporte deux séries de feuilles :*

- Les énoncés s'étalant sur 4 pages que les candidats sont appelés à garder
- Les feuilles réservées aux réponses (Answer sheets) s'étalant sur 4 pages, lesquelles doivent être rendues à la fin de l'épreuve aux professeurs surveillants

2. *Il sera tenu compte de la présentation, (l'écriture au crayon n'étant pas permise)*

Reading passage :

1. With plant species disappearing at an alarming rate, scientists and governments are creating a global network of plant banks to store seeds and sprouts, precious genetic resources that may be needed for man to adapt the world's food supply to climate change.
2. The leader of that effort, the Global Seed Vault near Longyearbyen, Norway, recently received its first seeds, millions of them. Bored into the middle of a frozen Arctic mountain topped with snow, the vault's goal is to store and protect samples of every type of seed from every seed collection in the world.
3. Thousands of neatly stacked and labeled gray boxes of seeds — peas from Nigeria, corn from Mexico — reside in this glazed cave-like structure, forming a sort of backup hard drive, in case natural disasters or human errors erase the seeds from the outside world.
4. Descending almost 500 feet under the permafrost, the entrance tunnel to the seed vault is designed to withstand bomb blasts and earthquakes. An automated digital monitoring system controls temperature and provides security akin to a missile silo. No one person has all the codes for entrance.
5. The Global Vault is part of a broader effort to gather and systematize information about plants and their genes, which climate change experts say may indeed prove more valuable than gold. In Leuven, Belgium, scientists are scouring the world for banana samples and preserving their shoots in liquid nitrogen before they become extinct. A similar effort is under way in France on coffee plants. A number of plants, most from the tropics, do not produce seeds that can be stored.
6. For years, a mixed network of seed banks has been amassing seed and shoot collections in a haphazard manner. Labs in Mexico banked corn species. Those in Nigeria banked cassava. Now these scattershot efforts are being urgently consolidated and systematized, in part because of better technology to preserve plant genes and in part because of the rising alarm about climate change and its impact on world food production.
7. The urgency of the problem was underscored as wheat prices rose to record highs and wheat stores dropped to the lowest level in 35 years. A series of droughts and new diseases cut wheat production in many parts of the world. "The erosion of plants' genetic resources is really going fast," said Dr. Rony Swennen, head of the division of crop biotechnology at the Catholic University of Leuven in Belgium, who has preserved half of the world's 1,200 banana types. "We're at a critical moment and if we don't act fast, we're going to lose a lot of plants that we may need."

8. The United Nations International Treaty on Plant Genetic Resources, ratified in 2004, created a formal global network for banking and sharing seeds, as well as for studying their genetic traits. Last year, its database received thousands of new seeds.
9. A system of plant banks could be crucial in responding to climate crises since it could identify genetic material and plant strains better able to cope with a changed environment.
10. Here at the Global Vault, hundreds of gray boxes containing seeds from places ranging from Syria to Mexico were moved this week into a freezing vault to be placed in suspended animation. They harbor a vast range of qualities, like the ability to withstand drier, warmer climate.
11. Climate change is expected to bring new weather stresses, as well as new plant pests into agricultural regions. Heat-trapping carbon dioxide emissions will produce not just global warming but an increase in extreme weather events, like floods and droughts, the Intergovernmental Panel on Climate Change concluded.
12. The importance and vulnerability have become apparent in recent years. Seed banks in Afghanistan and Iraq were destroyed during conflicts in those nations, by looters who were after the plastic containers that held the seeds. In the Philippines, a typhoon bore through the wall of a seed bank, destroying numerous samples.
13. The goal of the new global plant banking system is to protect the precious stored plant genes from the vagaries of climate, politics and human error. Many banks are now "in countries where the political situation is not stable, and it is difficult to rely on refrigeration," Dr. Swennen said. Seeds must be stored at minus 20 degrees Celsius, that is, well below freezing, and plants that rely on cryopreservation must be far colder.
14. Underground near Longyearbyen, just 600 miles from the North Pole, the seeds will stay frozen despite power failures. The Global Crop Diversity Trust is also financing research into methods for storing genetic material from plants like bananas and coconuts that cannot be stored as seeds.

By ELISABETH ROSENTHAL, *The New York Times*, Friday February 29, 2008

PART I: Comprehension Questions (30 marks)

I – Choose a suitable title for the passage:

- A – The global warming's impact on plant growth.
- B – Saving the genetic legacy of threatened plants.
- C – The United Nations' efforts to preserve plant diversity.

II – Fill in the table on the answer sheet with information from the passage on the Global Seed Vault.

III –Complete the following statements with information from the text:

- a) *For plant seeds to be well preserved, they need to be both ... and ...*
- b) *To ensure that it is secure enough, the vault was designed to In addition, it as well as...*

IV -State whether the following are TRUE or FALSE. Justify your answers from the text:

- a) The Global Seed Vault is considered to be the only real effort, so far, to deal with the issue of seed conservation.
- b) As they do not produce preservable seeds, some tropical plants cannot be saved from extinction.

V – What is the major goal for which the global network of plant banks was created?

VI – Which of the following is not a threat likely to lead to the seeds' erosion?

1. conflicts
2. natural catastrophes
3. terrorist acts
4. human errors
5. climate change
6. wrong political decisions

VII – How would climate change affect seeds and plants?

VIII – What has motivated the interest in consolidating and systematizing efforts to preserve plant species and their seeds?

IX – What do the following words (underlined in the text) refer to?

- a) that effort (§ 2)
- b) they (§ 5)
- c) its (§ 8)
- d) that (§14)

X – Find in the text words which have the closest meaning to:

1. to resist (§ 4)
2. gathering in large quantities (§ 6)
3. features (§ 8)
4. a variety of (§ 10)

PART II: Language (30 marks)

1. Choose the right alternative:

The twenty-first century will overturn many of our basic assumptions about economic life. To make the right choice, we [1] (*may / must / can*) understand four earth-changing trends unprecedented in human history. First, the spread of modern economic growth means that the world on average is rapidly getting richer in terms of income per person. [2] (*Moreover, / Thus, / Although,*) the gap in average income per person between the rich world, centered in the North Atlantic, and [3] (*many/ much / a few*) of the developing world, especially Asia, is narrowing fast. Second, the world's population will continue to rise, [4] (*despite / besides/ thereby*) amplifying the overall growth of the global economy. Not only are we each producing more output [5] (*by /in / on*) average, but there will be many more of us by mid-century. The scale of the world's economic production by mid-century is [6] (*therefore / likewise/ furthermore*) likely to be several times that of today. Third, our bulging population and voracious use of the earth's resources are leading to unprecedented multiple environmental crises. Never before has the magnitude of human economic activity been [7] (*too large /enough large / large enough*) to change fundamental natural processes at the global scale, including the climate itself. Humanity has [8] (*also / too / both*) filled the world's ecological niches; there's no place to run. Fourth, [9] (*while/ indeed/ besides*) many of the poor are making progress, many of the very poorest are stuck at the bottom. Nearly 10 million children, mainly [10] (*whose /who / whom*) families are too poor, die each year because they can't be sustained.

2. Supply the correct tense and verb form:

In 1947 Hungarian British Scientist Dennis Gabor [1] (**experiment**) with ways to improve the resolution of the electron microscope when he accidentally [2] (**invent**) the hologram.

The invention [3] (**win**) him a Nobel Prize, but since then nobody [4] (**can**) figure out how to make the holographic version of a motion picture. Holograms have remained static. Recently, however, researchers at the University of Arizona in Tucson [5] (**create**) an updatable holographic film, made of a unique blend of polymers that [6] (**allow**) images to be stored, erased and replaced with new images every few minutes. That's too slow for Hollywood but fast enough for a host of new applications.

In the future, doctors [7] (**can**) perform keyhole surgery guided by MRI images in 3-D. If things went the way researchers had planned, it [8] (**be**) possible to cut the time [9] (**need**) to refresh the 3-D image from minutes to milliseconds, [10] (**lead**) to holographic TV or videogames.

3. Use the right form of the word given between parentheses:

An important scientific [1] (**achieve**) — a discovery, a cure, or some other breakthrough—can bring [2] (**prestige**) awards, worldwide recognition, and [3] (**last**) fame (not to mention financial gain). The prospects of these kinds of rewards can be powerful motivators. Just as every teenager with a guitar dreams about writing a hit song, and every aspiring actor imagines accepting an Academy Award, it is [4] (**like**) that many scientists daydream about traveling to Stockholm, Sweden, to accept a Nobel Prize for a scientific breakthrough.

Daydreams aside, scientists [5] (**competition**) intensely to be first to achieve some significant result—a distinction referred to as priority. "Credit in science goes only for originality, for being the first to discover something," write science journalists William Broad and Nicholas Wade in their book *Betrayers of the Truth*. "With rare exceptions, there are no rewards for being second."

4. While keeping the same meaning, rewrite the following sentences as indicated on the answer sheets

1. In spite of the relentless efforts to find a cancer cure, scientists have not made any significant breakthroughs.
2. There are many satellites based in space used to monitor pollution.
3. Despite most nations' attempts to reduce GHG emissions, no tangible results have been achieved.
4. By 2015, thousands of diagnostic procedures and treatments for genetic conditions are likely to be market-ready.
5. You will not find a greater public interest in any field other than genetics.

PART III: Translation & Writing (20 marks)

A - Translate the following into English : (5 marks)

Des chercheurs se penchent actuellement sur l'étude des graines d'espèces et de plantes rares qu'ils avaient auparavant collectées et stockées dans des banques de semences. Ces recherches leur permettront de savoir lesquelles de ces plantes ont des graines capables de survivre très longtemps et lesquelles, au contraire, ont une vie plus courte.

B - Write about the following topic in approximately 15 lines : (15 marks)

Most inventions and technological processes have so far been environment-damaging. Give some examples of such inventions and processes and indicate how they could have been made more climate-friendly.