［英語］　（全6題）

（注意）解答は問題ごとに別の解答用紙を用いること。

問題1から問題3を英訳せよ

［問題1］

それぞれの器具を使った後、すぐに洗浄することでかなりの時間を節約することができる。というのは、その時点では汚染がどの様なタイプであるのかを知っているであろうし、また乾いて固くなってしまってからよりも容易に除去出来るだろうからである。

［問題2］

距離を測定する方法はガリレオ（Galileo）よりはるか以前にも良く知られていた。しかし、時間、特に短い時間、を正確に測定する方法はなかった。後になってより満足な時計を考案したけれども、ガリレオの運動に関する最初の実験は自分の脈拍（pulse）を使って行われた。

［問題3］

ある化学反応が合成手段として役に立つかどうかは、その反応速度に依存する。ある反応は瞬時に起こる。ある反応は大変遅いために、実用上その反応は起こらないのと同じである。

［問題4］

次は Carl Sagan の著書”The Dragons of Eden; Speculations on the Evolution of Human Intelligence（1977 年）”で、脳の役割について著者の考えを記述した部分である。和訳せよ。

Calculus, Newtonian physics and geometrical optics were all derived by fundamentally geometrical arguments and are today taught and demonstrated largely by analytical arguments: creating the mathematics and physics is more of a right-hemisphere（注） function than teaching it. Major scientific insights are characteristically intuitive, and equally characteristically described in scientific papers by linear analytical arguments. The creative act has major right-hemisphere components. But arguments on the validity of the results are largely left-hemisphere functions. I think the most significant creative activities of our or any other human culture - legal and ethical systems, art and music, science and technology - were made possible only through the collaborative work of the left and right cerebral hemispheres（注）. These creative acts, even if engaged in rarely or by a few, have changed us and the world.

（注）right cerebral hemisphere：右大脳半球

［問題5］

下の文章を読み、(A), (B)に解答せよ。

In the gas-discharge tubes which are being used by Professor Roentgen and many others to produce X-radiation there is also a fluorescent effect produced in the glass walls of the tubes. It has been shown that the actual source of the X-radiation is the brightly fluorescing area of the tube. Several scientists have examined the relationship between the fluorescence and the production of X-radiation at that time.

Henri Becquerel set up experiments in which pieces of fluorescent material were placed on a photographic plate wrapped in a light-proof enclosure. These were then placed in the sunlight to stimulate fluorescence in the material after which the photographic plates were developed to look for signs of a penetrating radiation.

One of the fluorescent materials that Becquerel was using was a compound of uranium. A period of bad weather when he could not place the materials in direct sunlight caused Becquerel to delay some of his experiments. He stored his uranium in contact with the photographic plates for several days out of the sunlight. When he developed the plates he observed darkening and an image of a metal cross(注) which he had placed between the uranium and the photographic plate. The uranium was apparently producing a penetrating radiation without being exposed to any other form of radiation such as sunlight, demonstrating that fluorescence or phosphorescence was apparently not required to produce the radiation.(1) A photographic print showing this effect is dated March 2, 1896.

This characteristic of certain materials, such as uranium, to spontaneously emit a radiation which penetrates like X-radiation will later become known as radioactivity.

(注)cross: 十字架

(A) ベクレル(Becquerel)が蛍光の発生とX線のような透過力のある放射線の発生の相関を調べる目的で、当初おこなおうとしていた実験の手順を記述せよ。

(B) 下線部(1)を和訳せよ。

［問題6］以下の英文について（A）、（B）、（C）に答えよ。

We have run out of room on spaceship Earth. There are no longer virgin lands to which to send surplus population. Of all the difficulties in the contemporary human encounter with nature, it is, I think, the continuing population explosion that is the greatest and the gravest. The pressure of people produces much pollution, and many environmentally destructive practices are pursued for short term gain in order to cope with the increase in numbers of people.(1)

In many international environmental conferences, whether political or ethical or religious, there is a reluctance to acknowledge that this is the case.(2) Politically the difficulty arised from the fact that it is the developing, rather than the developed, nations that generate most of the population increase. People who are poor are bound to see children as one of the few resources to which they have ready access. The uncertainties of infant mortality in some less developed countries encourage the large family as an insurance policy, so that there is some surviving provision for meeting need in old age.(3) Modern contraceptive practice is not always readily compatible with indigenous cultures. The developed countries cannot merely tell the developing countries to stop producing children. It seems clear that a degree of prosperity is necessary before family planning become a widely acceptable practice. The only political way to implement a control on the Earth's population is to produce a fairer sharing of its resources.

（A）下線部（1）を和訳せよ。

（B）下線部（2） "this is the case" はどのようなことを指すのか、日本語で具体的に述べよ。

（C）下線部（3）を和訳せよ。