經濟部所屬台灣中油股份有限公司 100 年新進博士級人員甄試試題

類　　別：全部類別
共同科目：英文

注意事項	1.本試題共 4 頁（A4 紙 4 張）。 2.本試題分 3 大類，各配分於題目處標明。須用藍、黑色鋼筆或原子筆**在答案卷指定範圍內標類別及題號（不必抄題）**依題目順序（測驗題除外）作答，於本試題或其他紙張作答者不予計分。 3.考試結束前離場者，試題須隨答案卷繳回，俟該節考試結束後，始得至原試場索取。 4.考試時間：90 分鐘。

一、閱讀測驗（20 分）：10 題，每題 2 分

（一）

If coal, oil, and gas are just the residues of plants that once lived above ground, then why not burn plants on the surface? With ready access to abundant sources of food in many countries of the world, there is a smaller need to devote vast territories of farmland to food production. In contrast, the demand for energy has no limits.

The fossil fuels on which we have come to depend are growing harder to find, and therefore more expensive. The latest findings on global warming suggest that the diversion of the Gulf Stream and the melting of polar ice caps may be among the least of the environmental problems ahead of us. Once methane bubbles up from the sea and the forests catch fire, releasing yet more carbon, warming may increase to a level at which human life will become impossible, anywhere on the planet.

We know we must replace coal, oil, and gas with renewable sources of energy. But how? The answer used to be “go nuclear,” but nuclear power has proved prohibitively expensive. Hydropower sounds clean, but you have to flood entire valleys for it to work. Much is heard of wind, wave, and solar power. Unfortunately, intermittent energy sources need to be backed up by conventional power, for the wind does not always blow, and the sun does not always shine. Even more problematic is the manufacture of the hardware that such sources of power require. This can use up almost as much energy as they generate. Put a solar panel on your roof, and it will take the first several years of its use to replace the conventional energy that was needed to make the panel.

The hard truth is that since humans first discovered fire, we have found no energy source that can measure up to nature’s hydrocarbons. Yet coal, oil and gas are formed from the mineral residue of plants that once lived above ground. Suppose that, instead of extracting and burning fossil fuels, we burned plants growing on the surface. And suppose we constantly replanted the areas from which we harvested this living fuel, and then burned the replacement plants. Suddenly things would be very different. Scarcity would disappear, as fuel became endlessly renewable. So, too, would the threat to the climate. Carbon would be released when the first plants burned, but an equivalent amount of carbon would be re-absorbed by the replacement plants. In effect, the same carbon would go around and around, as we extracted the energy we need by burning it over and over again.

What a good idea! And it is the same good idea that humanity relied upon until quite recently. In time, the fossil fuel waves--first coal, then oil, and now gas--may come to be seen as something of a historical blip, just like so many other twentieth-century phenomena. But could we really meet our energy needs today by burning plants? We could.

A ton of straw, when biologically converted from cellulose to bioethanol, will produce 300 liters of vehicle fuel. Two tons of dry wood will produce as much electricity as one ton of coal, oil, or gas. Not as good, you may think, but there is more to the story. Power generation produces twice as much heat as electricity. At present, however, electricity is produced in huge power stations sited for easy access to fossil fuel supplies. These stations cannot use the heat that they produce so it is simply wasted. Up to 20 percent of the electricity these stations produce is also wasted through overproduction to meet demand peaks, and friction during the long-distance journeys around grids.

Plants, however, can grow anywhere, so bioenergy power stations could be located near settlements they would serve. Biofuel could be fed into furnaces as demand required. Numerous small generating stations could capture the heat they gave off and pipe it to surrounding communities. Power plants such as these can burn any kind of biomass. Wood produced from the short-rotation cutting back of fast-growing trees works best, but long grasses will also do. All you need is the land to grow the plants. Where would that come from?

Before the era of mass fossil fuel use, Britain devoted about one-third of its land surface to growing fuel. Recovery of that land, together with existing woodland, for biomass production could enable Britain to meet its entire electricity needs, and much of its heat energy besides. The fiscal restructuring of its energy market would swiftly direct energy distributors toward the new fuel of choice. Farmers could transform themselves into energy heroes merely by changing their crops. Conservationists would see tree cover in places like Britain, currently lower than almost anywhere else in Europe, return at last to respectable levels. The ravaged rural economies in many countries would be boosted by the creation of tens of thousands of new jobs in forestry, transportation, and power plant operation.

Will it happen? Saving the world may not be a priority among nations, but it should be.

1. Who is most likely to be the author of this article?
   (A). The owner of an oil company.
   (B). A scientist studying chemistry.
   (C). An expert on the mining industry.
   (D). The chairman of a forestry company.
2. Which of the following environmental problems is NOT mentioned as a danger involved with global warming?
   (A). The Gulf Stream will change direction.
   (B). Methane will come up from the sea.
   (C). Some animal species will die out.
   (D). The polar ice caps will melt.
3. Plants are superior to fossil fuels as energy source in that _____.
   (A). they are renewable
   (B). they can be turned into gas
   (C). they contain more energy by weight
   (D). they release less carbon when burned
4. Which of the following statements is NOT correct?
   (A). Human beings relied on burning plants for energy until quite recently.
   (B). The author is of the opinion that we have no choice but to replace fossil fuels.
   (C). Before fossil fuels came into use, one-third of Britain’s land was used to grow fuel.
   (D). Up to 20 percent of the electricity from power plants is wasted due to mismanagement.
5. What is the main idea of this passage?
   (A). All energy sources have their advantages and disadvantages.
   (B). To save the world, we have to burn plants instead of fossil fuels for energy.
   (C). Among all energy types, fossil fuels are the most useful and indispensable.
   (D). To reduce the impact of global warming, we must use vacant land to grow plants.

（二）

Under existing law, a new drug may be labeled, promoted, and advertised only for those conditions in which safety and effectiveness have been demonstrated and of which the Food and Drug Administration (FDA) has approved, or so-called “approved uses.” Other uses have come to be called “unapproved uses” and cannot be legally promoted. In a real sense, the term “unapproved” is a misnomer because it includes in one purchase two categories of marketed drugs that are very different: drugs which are potentially harmful and will never be approved, and already approved drugs that have “unapproved” uses. It is common for new research and new insights to demonstrate valid new uses for drugs already on the market. Also, there are numerous examples of medical progress resulting from the serendipitous observations and therapeutic innovations of physicians, both important methods of discovery in the field of therapeutics. Before such advances can result in new indications for inclusion in drug labeling, however, the available data must meet the legal standard of substantial evidence derived from adequate and well-controlled clinical trials. Such evidence may require time to develop, and, without initiative on the part of the drug firm, it may not occur at all for certain uses. However, because medical literature on new uses exists and these uses are medically beneficial, physicians often use these drugs for such purposes prior to FDA review or changes in labeling. This is referred to as “unlabeled uses” of drugs.

A different problem arises when a particular use for a drug has been examined scientifically and has been found to be ineffective or unsafe, and yet physicians who either are uninformed or who refuse to accept the available scientific evidence continue to use the drug in this way. Such use may have been reviewed by the FDA and rejected, or, in some cases, the use may actually be warned against in the labeling. This subset of uses may be properly termed “disapproved uses.”

Government policy should minimize the extent of unlabeled uses. If such uses are valid—and many are—it is important that scientifically sound evidence supporting them be generated and that the regulatory system accommodate them into drug labeling. Continuing rapid advances in medical care and the complexity of drug usage, however, makes it impossible for the government to keep drug labeling up to date for every conceivable situation. Thus, when a particular use of this type appears, it is also important, and in the interest of good medical care, that no stigma be attached to “unapproved usage” by practitioners while the formal evidence is assembled between the time of discovery and the time the new use is included in the labeling. In the case of “disapproved uses,” however, it is proper policy to warn against these in the package insert. Whether use of a drug for these purposes by the uninformed or intransigent physician constitutes a violation of the current Federal Food, Drug and Cosmetic Act is a matter of debate that involves a number of technical and legal issues. Regardless of that, the inclusion of disapproved uses in the form of contraindications, warnings and other precautionary statements in package inserts is an important practical deterrent to improper use. Except for clearly disapproved uses, however, it is in the best interests of patient care that physicians not be constrained by regulatory statutes from exercising their best judgment in prescribing a drug for both its approved uses and any unlabeled uses it may have.

6. The author is primarily concerned with _____ .
   (A) refuting a theory (B) drawing a distinction
   (C) discrediting an opponent (D) describing a new development
7. According to the passage, an unlabeled use of a drug is any use which _____ .
   (A) is medically beneficial despite the fact that such use is prohibited by law
   (B) has medical value but has not yet been approved by FDA for inclusion as a labeled use
   (C) is authorized by the label as approved by the FDA on the basis of scientific studies
   (D) is made in experiments designed to determine whether a drug is medically beneficial

8. All of the following are mentioned in the passage as reasons for allowing unlabeled uses of drugs EXCEPT _____ .
   (A) the increased cost to the patient of buying an FDA-approved drug
   (B) the medical benefits which can accrue to the patient through unlabeled use
   (C) the time lag between initial discovery of a medical use and FDA approval of that use
   (D) the availability of publications to inform physicians of the existence of such uses
9. With which of the following statements about the distinction between approved and unlabeled uses would the author most likely agree?
   (A) The distinction between approved and unlabeled uses has been obscured because government regulatory agencies approve only those uses which have been clinically tested.
   (B) Practicing physicians are in a better position than the FDA to distinguish between approved and unlabeled uses because they are involved in patient treatment on a regular basis.
   (C) The distinction between approved and unlabeled uses should be discarded so that the patient can receive the full benefits of any drug use.
   (D) The practice of unlabeled uses of drugs exists because of the time lag between discovery of a beneficial use and the production of data needed for FDA approval.
10. The author regards the practice of using drugs for medically valid purposes before FDA approval as _____ .
   (A) an illegal activity (B) a dangerous policy
   (C) a necessary compromise (D) an unqualified success

二、翻譯（40 分）

（一）英譯中：2 題，每題 10 分

1. Enterprises should be able to get retroactive carbon credits whenever they can show solid evidence of greenhouse gas reduction over the past two decades, as many multinational companies started their efforts in the 1990s.

2. Scientists have identified a ‘sleepless elite’ – a small group of people for whom a lie-in is a waste of time. Rather than being tired, bad-tempered under-achievers, they are an energetic, outgoing and optimistic group who can happily and healthily get by on just four or five hours of shut-eye a night.

（二）中譯英：2 題，每題 10 分

1. 近年台灣企業已經愈來愈認同「綠色會計」，但還有不少企業的環保作為仍在「打迷糊仗」。環境會計嚴格要求把環保帳目一一攤在陽光下，顯然與企業主的利益相衝突。

2. 台灣石化產業未來的生存與發展有賴於上游供應商供應充足原物料。過去幾十年，由於國營的台灣中油公司不斷投資新的輕油(石油腦)裂解設備，台灣石化業者從未擔心基本原料的供應不足。

三、作文（40 分）

Living in an era of globalization, everyone is a citizen of the world. Write an essay to discuss what makes a responsible citizen of the world.