PROVA Nº

Campo de preenchimento exclusivo da Pós-Graduação

PROVA DE LÍNGUA INGLESA - MESTRADO
NOME DO(A) CANDIDATO(A)
INSTRUÇÕES

Antes de iniciar a prova leia atentamente as instruções abaixo:

- A prova é composta por 02 (dois) textos seguidos de questões de verdadeiro e falso, com o objetivo de determinar o grau de compreensão da língua inglesa;
- O candidato dispõe de três horas para sua realização;
- Apenas respostas escritas/marcadas em caneta azul ou preta serão consideradas durante a correção;
- A avaliação desta prova vai computar 0,4 (zero vírgula quatro) ponto para o acerto de cada item, em um total de 25 (vinte e cinco) itens;
- Os campos “PROVA Nº” ao longo da prova são de preenchimento exclusivo da secretaria de Pós-Graduação e visa o anonimato do aluno durante a correção.

Text 1

Ethanol's strain on agricultural resources has soured many advocates' former enthusiasm. Advances in algae-based biofuel technology may restore some of their optimism

Dear EarthTalk: How far along are we at developing algae-based and other higher yield sources of biofuels?—Jason McCabe, Tullahoma, Tenn.

A few years ago biofuels were all the rage. Environmental advocates to national security hawks alike were extolling the virtues of ethanol and biodiesel as a carbon-neutral bridge to

our energy future. But the bubble burst when it became apparent that there wasn't enough agricultural land in the U.S. or elsewhere to grow sufficient amounts of corn, palm and other crops to feed both people and their engines. To boot, the process of extracting and distributing biofuels has proven anything but carbon neutral. And with ever cheaper natural gas widely available now, paying a premium for ethanol or biodiesel seemed frivolous.

But a new generation of biofuels based on algae might just change all that. One of the major problems with biofuels that algae could solve is space, since algae can yield as much as 100 times more fuel per unit area than other so-called "second generation" biofuel crops (e.g. non-food crops or non-food waste parts of food crops). Federal researchers from the U.S. Department of Energy report that it would take only 15,000 square miles—less than 1/7 the area now used to harvest all the corn across the country—to produce enough algae fuel to replace all of our petroleum fuel.

While burning algae-derived fuel in an engine or factory generates carbon dioxide (CO2) emissions just like fossil fuels do, the algae itself requires CO2 to photosynthesize—so overall no new CO2 is added to the atmosphere. Furthermore, any CO2 created through processing or refinement can be captured and re-directed to the growing algae beds. And unlike other biofuel feedstocks, algae production has minimal impact on freshwater supplies—especially when it can be undertaken in ocean waters or even wastewater.

At least three well-funded ventures are poised to ramp up production of commercially viable quantities of algae-derived crude oil over the next couple of years. California's Solazyme is building an algae fuel factory in Brazil in partnership with food processing giant Bunge and expects to manufacture 100,000 metric tons of fuel there each year. Solazyme is also retooling an Archer Daniels Midland factory in Clinton, Iowa to produce another 100,000 metric tons of algae fuel per year domestically.

Another company ready to make the leap into commercial scale production of algae fuel is Sapphire Energy, which operates a 2,200 acre algae farm in New Mexico where oil is harvested across 70 open ponds and refined on site. Sapphire—Bill Gates is a big investor—expects the facility, which goes online next year, to generate some 10,000 barrels of crude oil a day by 2018.

Yet a third player in the emerging algae fuel market is Synthetic Genomics, the brainchild of genomics guru Craig Venter, who beat the U.S. government in sequencing the human genome and at a fraction of the cost. The company, which last year purchased an 81-acre site in California's Imperial Valley to scale up and test its synthetic algae strains across 42 open ponds, plans to genetically modify algae to optimize its oil output. ExxonMobil signed a $600 million development deal with the company to further the cutting edge research.

(Extracted from http://www.scientificamerican.com/article.cfm?id=progress-on-biofuels)

According to Text 1, decide if each sentence is true (T) or false (F).

1. ( ) In the first sentence of the first paragraph, the meaning of the word "rage" may be best described as a feeling or expression of violent and uncontrollable anger.

2. ( )The second sentence of the first paragraph would maintain its original meaning if the word “extolling” were to be replaced with “going into raptures over”.

3. ( )The text is adamant that biofuels area a carbon neutral source of energy.

4. ( )One of the advantages of algae-based biofuels is their higher energy yield per unit area, when compared to other “second generation” biofuel sources.

5. ( )According to the text, branches of the United States Government are building facilities to produce enough algae fuel to replace all of the United States petroleum fuel.

6. ( )The text implies that algae-based biofuel burning does not release any carbon dioxide into the atmosphere.

7. ( )One of the disadvantages of algae-based biofuels is that algae production is reliant on freshwater.

8. ( )Solazyme is a Brazilian enterprise that will build an algae fuel factory in partnership with food processing giant Bunge.

9. ( )According to the text, at least two endeavors are growing algae in reservoir-like structures.

10. ( ) Several biotechnology companies are investing on the algae fuel market, including the development and scaling up of genetically engineered algae to increase oil yield.

Text 2

Biotech is thrusting us into new political territory
Stem cells, embryo research and synthetic biology are just a few of the issues that will force strange new political alliances

NOBODY is immune from the feeling that change is accelerating with each passing year. This sense of "future shock" is perhaps most closely associated with information technology. We've all experienced the anxiety, frustration and resentment that accompanies the introduction of a new version of software on which we depend, or the realization that people younger than ourselves have adopted a new technology that makes their lifestyle seem very different from our own.

Worries about rapid change also bubble up in response to scientific progress, especially when it raises moral questions. We've seen this time and again with controversies over evolution, reproductive rights, the origin of the universe and nearly all issues in science that relate to human values.

Biology is an especially volatile source of sensitivities. The old biology was mainly observational, but the new biology, or biotechnology - including stem cells, embryo research, synthetic biology and reproductive technology - has unprecedented power to change basic life processes.

Such sensitivities are understandable. People rightly feel that high stakes are involved when science challenges our customary and largely workable moral framework.

And there is, of course, hyperbole associated with biotech. But even if only some of the predictions bear fruit, the new biology will challenge everything in its path, including our understanding of ourselves, our relationship with the world, our social arrangements and values and our political systems. The new biology is thus becoming part of political life. Candidates for national political office need to have staked out positions on these issues.
Biology and politics already intersect, of course. A good example is the abortion controversy, a recurrent theme in the US since the 1970s, with both sides trying to influence the decision over whether to continue a pregnancy or not.

But this issue is relatively uncomplicated compared with what is to come. The straightforwardness of the available positions (anti-abortion or pro-choice) is vastly outstripped by the scenarios that will be forced on us by the new biology.

One recent example is the controversy over the "three-parent embryo". This is a technology for avoiding mitochondrial disease whereby nuclear DNA from an egg with defective mitochondria is injected into an egg from another woman with healthy mitochondria, and the resulting egg can then be fertilized. To some this is perfectly acceptable. To others it smacks of eugenics. This is just one example of how, in the early 21st century, we are crossing the threshold to a new biopolitical world.

Already there are more protagonists than in the past. Science, the state, industry and religious organizations are just some of the parties vying for control.

What is more, familiar ideological labels are poor predictors of policy positions. US anti-genetic-engineering activist Jeremy Rifkin was perhaps the first to notice that anxieties about biology cut across the political spectrum. He noted more than a decade ago in an article for UK newspaper *The Guardian*: "The current debate over... biotech issues, is beginning to reshape the whole political landscape in ways no one could have imagined just a few years ago."

Rifkin was right: biopolitical issues increasingly make for strange political bedfellows and alliances of convenience as people with differing sympathies make common cause.

In one camp are bioprogressives who are supportive of the new biology from opposite sides of the traditional political divide. Those on the left emphasize regulation, equality and the common good, while those on the right emphasize free enterprise as the most reliable source of innovation.

There are also several flavours of bioconservative. Some are religious traditionalists, others are secular neoconservatives who regard science as a threat to human dignity, moral

equality and human nature itself. Bioconservatives are increasingly joined by "green" progressives who harbour deep doubts about the implications of science for social justice.

The *bête noire* of all types of bioconservatives is the small but growing movement called transhumanism, which enthusiastically embraces technological change. Transhumanists see the prospects for drastic enhancements in what bioconservatives regard as an essential human nature that is too precious and fragile to withstand manipulation.

In a foretaste of the strange new biopolitical alliances to come, consider the shortage of organs for transplant. The established view among liberals and conservatives is that virtually any incentive for donation is morally unacceptable. But some libertarians and some on the left decry the loss of thousands of lives each year while suitable organs, especially kidneys, are not made available. Although they are poles apart on most issues, they agree that policy options for incentives should be explored.

It's hard to say how great the scale of political changes wrought by the new biology will be, but there can be little doubt that we are heading into uncharted territory. We might hold out hope that all sides can be convinced that science, within carefully negotiated limits, can enhance and enrich our quality of life. But what counts as enhancement and enrichment will be a matter of negotiation. That is the subject matter of the new biopolitics.

If politics is, as I believe it is, the only alternative to violence, these matters are worthy of the best politics we can muster.

Jonathan D. Moreno *is a bioethicist at the University of Pennsylvania in Philadelphia. His latest book is The Body Politic: The battle over science in America (Bellevue Literary Press)*

(Extracted from http://www.newscientist.com/article/mg21528797.000-biotech-is-thrusting-us-into-new-political-territory.html)

According to Text 2, decide if each sentence is true (T) or false (F).

11. ( ) The author of the text is concerned that people might face in the future psychological issues related to those they experience today with information technology.

12. ( ) According to the author, biotechnology has the power to influence human values and basic life processes.

13. ( ) In the fifth paragraph of the text, the word “hyperbole” boasts the meaning of deliberate depreciation.

14. ( ) The author proposes that politicians should stay away from the moral implications of biotechnology.

15. ( ) For the author of the text, the terms “biotechnology” and “new biology” are interchangeable.

16. ( ) The technology of a “three-parent embryo” is one in which the embryo has genetic material from three different individuals in the cell nucleus.

17. ( ) According to the text, some people believe that the “three-parent embryo” technology resembles eugenics in an acceptable way.

18. ( ) The author believes that nowadays only the scientific community, the state, the industry and religious organizations are contending for policy control of biotechnology.

19. ( ) The activist Jeremy Rifkin believes that biotechnological issues in politics reflect national political party’s ideologies.

20. ( ) According to the author, the term “bioprogressives” is defined by those politicians who want equality, common good and free enterprise for biotechnologies.

21. ( ) The author suggests that some “bioconservatives” will cooperate with “green” progressives to pass mutually beneficial policies.

22. ( ) Bioconservatives and transhumanist groups are opposed in their beliefs about biotechnology development.

23. ( ) Bioconservatives consider the manipulation of life as part of an essential human nature that is too precious and need to be taken advantage of.

24. ( ) According to the text, liberals and libertarians alike are open to policy option compromises related to organ donation incentives.

25. ( ) The text suggests that the aim of biopolitics is to define the limits of what counts as enhancement and enrichment of human quality of life through biotechnology.

GABARITO

1 - FALSE
2 - TRUE
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