综英考试

翻译

英译汉（课文中划线句子）

1. A well-known scientist(some say it was Bertrand Russell) once gave a public lecture on astronomy. He described how the earth orbits around the sun and how the sun, in turn, orbits around the center of a vast collection of stars called our galaxy.

   一位著名的科学家（有人说是贝特兰 · 罗素）曾经做过 一次有关天文学的演讲。他描述了地球如何围绕太阳运转，以及太阳如何进而围绕大量星群的中心运转，这些星群即所谓的银河系。

2. According to a number of early cosmologies and the Jewish/ Christian/ Muslim tradition, the universe started at a finite, and not very distant, time in the past.

   依据一些早期的宇宙论的观点和犹太 / 基督 / 穆斯林教派传统的观点，宇宙起源于一个有限的并且不太遥远的过去的时间。

3. When most people believed in an essentially static and unchanging universe, the question of whether or not it had a beginning was really one of metaphysics or theology . One could account for what was observed equally well on the theory that the universe had existed forever or on the theory that it was set in motion at some finite time in such a manner as to look as though it had existed forever.

   在多数人都认为宇宙基本上是静态的而且是不变的情况下，探讨宇宙是否有一个起源确实是一个属于玄学或神学范畴的问题。人们可以用两种不同的理论解释他们所观察到的事物。一种理论是宇宙永存；而另外一种理论是宇宙在某一个有限的时间以一种特定的方式被启动，而这种方式又使得宇宙看上去曾经永远存在。

4. A theory is a good theory if it satisfies two requirements. It must accurately describe a large class of observations on the basis of a model that contains only a few arbitrary elements, and it must make definite predictions about the results of future observations.

   一个好的理论应满足两个要求。一是它必须能够用少数几个任意要素的模型来准确地描述人们所观察到的大量现象。二是它还必须能够对人们未来所能观察到的现象的结果加以明确的预测。

5. It turns out to be very difficult to devise a theory to describe the universe all in one go. Instead, we break the problem up into bits and invent a number of partial theories.

   事实上，要想创立一个能够描述一切宇宙现象的理论是十分困难的。取代的办法是，我们可以把问题分割开来，进而创建一些局部理论。

6. A survey of 1,200 Millennials conducted in 2016 by the Economic Innovation Group 3 found that more Millennials believed they could have a successful career by staying at one company and attempting to climb the ladder than by founding a new one.

   经济创新集团（EIG）在 2016 年对 1200 名千禧一代进行的一项调查发现，更多的千禧一代认为，通过就职于一家公司并努力逐级攀升，而无须通过创业，他们就可以拥有成功的事业。

7. As with American politics, it appears the geography of US. venture capital and economic growth has become increasingly polarized.

   与美国的政治一样，美国风险资本和经济增长的地理分布似乎也日益两极分化。

8. While a mobile app can make for a decent side hustle to a regular corporate job, it won't turn into the next Apple or Google, and American investors know that.

虽然手机 App 能为日常的公司工作提供一臂之力，但它不会成为下一个苹果或谷歌，而且美国投资者也知道这一点。

9. In a thread attached to his tweet about start-ups, Krisiloff, the former Y Combinator executive, added that the opportunities "to start compelling start-ups, " for college students without industry-specific knowledge, "has vastly shrunk. "

   在一条创业推文附带的一个帖子中，Y 组合创业加速器的前高管克里西洛夫补充说，对于没有特定行业知识的大学生来说，“开创引人瞩目的公司”的机会已经“大幅缩水了”。

10. While the Austrian American economist Joseph Schumpeter is best known for his 1942 paper describing his theory of "creative destruction, " the process of disrupting existing industries through business innovation or technological change, few people know about another prediction he made: He believed that innovation would gradually become an embedded process within large corporations. 6 In many ways, Schumpeter predicted the internal innovation hubs of corporate giants like Amazon 8 and SAP 9. With incumbents making innovation part of their established routines, he theorized, they would gradually squeeze out the traditional entrepreneur.

    奥地利裔美国经济学家约瑟夫 · 熊彼特因他 1942 年的一篇论文而广为人知，论文论述了他的“创造性破坏”理论，即通过商业创新或技术变革，而破坏现有产业的一个过程；但是很少有人知道他做出的另一个预测：他认为创新会逐渐成为大公司内部的根深蒂固的流程。熊彼特从多方面对亚马逊和 SAP 等企业巨头的创新内核做出了预测。他从理论上总结道，由于现有主导企业将创新确定为其既定惯例的一部分，他们将把传统型创业者逐步排挤出去。

11. The justification for a nuclear revival has been based largely upon two policy priorities: climate change mitigation and security of energy supply.

    核能源复兴的正当理由主要是由于我们在决策时要优先考虑以下两点：减缓气候变化及保证能源供应的安全性。

12. The catastrophic nature of the risk of exposure from a nuclear power plant that can potentially bring great destruction and untold human suffering to humanity and the environment makes this risk unacceptable to humanity.

    核电站事故是灾难性的，可能给人类和环境带来巨大的破坏和不可估量的痛苦，这种风险难以为人类所接受。

13. While sources of ionizing radiation are essential to modern health care, they can be detrimental to living organisms if the production and the use of radiation sources and radioactive material are not covered by measures to protect individuals exposed to radiation.

    虽然电离辐射源对现代卫生保健至关重要，但如果在辐射源和放射性材料的生产和使用过程中对于暴露在辐射中的个体没有采取保护措施，那么电离辐射对生物是有害的。

14. Many countries are aspiring to nuclear energy and any increase in the number of states with nuclear energy capacity increases the likelihood of nuclear proliferation through weaponization of civilian nuclear energy materials.

    许多国家都渴望拥有核能，而拥有核能的国家数量的增加会加大民用核能材料武器化的可能，从而增加核扩散的风险。

15. Although nuclear risk per se has a low probability that is difficult to estimate, its foreseen damages are of an extreme magnitude in the event that it occurs. In other words, whereas the risk of a nuclear catastrophe is low, its impact on public health remains unknown.

    虽然核风险本身的概率很低，难以估计， 然而一旦发生，其可预见的损害将是极其严重的。换句话说，虽然核灾难的风险很低，但它对公众健康的影响仍未可知。

词汇题

课文重点单词

重点单词	
longstanding存在已久的	cosmology宇宙学
Jewish犹太人的	Christian基督教的
Muslim伊斯兰教的	Genesis《创世纪》
archaeologist考古学家	smack拍击
intervention插入、干涉	monumental不朽的
antinomy自相矛盾	compelling非常强烈的
metaphysics玄学	theology宗教学
landmark里程碑	infinitesimally极微小地
inversely颠倒地	provisionall临时的
hypothesis假说	falsify伪造
gravitational吸引作用的	quantum量子
microelectronics微电子学	inexplicable不可解释的
yearn渴望	
start-up新成立的公司、启动阶段的	downturn经济衰退期
millennial千禧一代	entrepreneur企业家
subscription会员费的缴纳	temperate气候温和的
domain领域	on the spot当场
play out发生、展开	more often than not经常
testify证明	underemployed未尽其才的
equity资产净值	underwater水下的
underlying隐含的	tweet在推特上发表信息
polarize使两极化	counterpart对应的事物
make for导致	hustle积极的行动
embed使嵌入	hub中心
incumbent在职者、占有市场的	theorize理论化
surpass超过	trillion万亿
solidarity团结	not necessarily并不一定
undeniable确凿的、不可否认的	symbiotic共生的
deployment部署	warrant使有必要
justification正当理由	revival复兴

重点单词	
mitigation缓解、减轻	non-proliferation限制核武器和化学武器的增加
spent fuel废燃料	catastrophic悲惨的
untold难以形容的	ionize电离、离子化
detrimental有害的	uranium铀元素
fabrication制作	enrichment浓缩
decommission拆除	uranium mill tailings铀矿尾矿
ore矿石	thorium钍（放射性元素）
plutonium钚（放射性元素）	residue残渣
stockpile库存	proliferation扩散、激增
sabotage故意破坏	rule out排除
epidemiologist流行病学家	reprocessing回收
attendant to随之而来的	inherently固有的
per se本质上	

人大芸窗选词填空

Our car **broke down** and we had to push it off the road. 我们的车**坏了**，我们不得不把它推下马路。

The proposals that your have **put forward** deserve serious consideration. 你**提出的建议**值得认真考虑。

Charities **depend on** people supporting their acticities. 慈善机构**依赖于**人支持他们的活动。

Weight **is proportional to** size. 重量**与尺寸**成正比。

How do you intend to **deal with** this problem. 你打算如何**处理**这个问题?

You look **as though** you've had a bad time. 你看起来**好像**过得很糟糕。

The truth **turned out to be** stranger than we had expexted. 事实**证明**比我们想象的还要奇怪。

They all made the same comment, although they **are independent of** each other. 他们都做了同样的评论，尽管他们是相互**独立**的。

It is hoped that the kidnappers will not **carry out** their threat to kill the hostages. 希望绑匪不会**实施**他们杀害人质的威胁。

Can you **account for** your absence last Friday? 你能**解释**上周五你缺席的原因吗?

The disease has a worldwide geographical distribution and occurs in all continents, including circumpolar, **temperate**, subtropical and tropical zones, especially in undeveloped and developing countries. 该病在世界范围内分布，发生在各大洲，包括环极地、**温带**、亚热带和热带地区，特别是在不发达国家和发展中国家。

Often, everyone deals directly with the leader, who can make most decisions **on the spot**. 通常，每个人都直接与领导打交道，而领导能够**当场**做出大多数决定。

A professor of economics says: “The general lesson is that if you make it more difficult for monopolies to dominate the market, then you will have more **start-ups** entering the market.” 一位经济学教授表示:“总的教训是，如果你让垄断企业更难主宰市场，那么你就会有更多的**初创企业**进入市场。”

When one looks at the figures, one can see the graph of employment opportunities rocketing up over the last 5 years and the unemployment figures **polarizing** downwards. 当你看这些数据的时候，你会发现就业机会在过去5年里直线上升，而失业数据则呈**两极分化**的下降趋势。

Research in Britain shows that low-skilled, low-educated workers and the young are most vulnerable to unemployment in an economic **downturn**. 英国的研究表明，在经济**低迷**时期，低技能、低教育程度的工人和年轻人最容易失业。

A decline in your home’s value could leave you **underwater**—owing more than your home is worth. 房屋价值的下降可能会让你**资不抵债**——欠债比房屋价值还多。

Exactly the same phenomenon has **play out** over a longer period in agriculture. 同样的现象在更长的时期内也在农业领域**发生过**。

Media coverage of the culture wars makes it look as if the nation is becoming increasingly **trend**, but public opinion surveys show little change. 媒体对文化战争的报道让人觉得这个国家似乎正变得越来越**“倾向”**，但民意调查显示变化不大。

The reforms of 1991 lowered corporate income taxes from 52 percent to 30 percent to stimulate **entrepreneurship**. 1991年的改革将企业所得税从52%降低到30%，以刺激**创业**。

Those economies which have successfully switched **underemployed** agricultural labour into manufacturing and service activities have generally achieved significant real economic growth rates. 那些成功地将**就业不足的**农业劳动力转换为制造业和服务业活动的经济体，通常都实现了显著的实际经济增长率。

It is a widely held belief that copyright law does not reach popular platforms such as Instagram. The misconception **stems from** the belief that participating in these online platforms is akin to giving up one’s rights. 人们普遍认为，版权法不会触及Instagram等流行平台。这种误解**源于**人们认为参与这些网络平台就等于放弃自己的权利。

When heated to high temperatures, cooking oils can leave a **residue** on nonstick surfaces. 当加热到高温时，食用油会在不粘的表面留下**残留物**。

To take advantage of the opportunities and respond to risks **attendant to** climate change, certain sectors of the economy must adapt or reinvent their business. 为了利用气候变化带来的机会和应对气候变化**带来的**风险，某些经济部门必须适应或重塑其业务。

The spokesman said, “We can’t **rule out** the possibility that the situation would be prolonged, despite our diplomatic efforts to resolve the issue”. 这位发言人说:“我们不能**排除**这种情况会被延长的可能性，尽管我们通过外交努力来解决这个问题。”

Police questioned the prisoner for several hours, but were unable to **extract** any further information. 警方对那名囚犯审问了几个小时，但未能**获得（提取到）**任何进一步的信息。

European Community environment ministers agreed to tighten controls on the production, transport and **disposal** of waste. 欧洲共同体环境部长们同意加强对废物的生产、运输和**处置**的控制。

All wood used in our furniture comes with a certificate saying it comes from **sustainable** forests. 我们家具中使用的所有木材都有一张证书，上面写着这些木材来自**可持续发展的**森林。

Tourism in the South Muntenia region is one of the most dynamic sectors that contribute substantially to the economic **revival** of the region. 南Muntenia地区的旅游业是最具活力的部门之一，为该地区的经济**复苏**作出了重大贡献。

Official said Washington recognizes India's need for significant oil imports and is having conversations to ensure there are alternative supplies of the fuel so that India's economy is not **adversely** affected. 一名官员说，华盛顿认识到印度需要大量进口石油，正在进行对话，以确保有替代燃料供应，这样印度的经济就不会受到**负面地（不利地）**影响。

The President **dismiss** criticisms suggesting that his speech Thursday was a smear on his anti-corruption stance. 总统**驳斥**了有关他周四的演讲是对他反腐败立场的诽谤的批评。

完形填空

人大芸窗选词填空（完形填空）

完形填空第七章

It is an interesting reflection on the general climate of thought before the twentieth century that no one had suggested that the universe was expanding or contracting. It was generally accepted that **either** the universe had existed forever in an unchanging state, or that it had been **created** at a finite time in the past more or less as we observe it today. In part this may have been **due to** people's tendency to believe in eternal truths, **as well as** the comfort they found in the thought that even though they may grow old and die, the universe is **eternal** and unchanging. Even those who realized that Newton's theory of gravity showed that the universe could not be static did not think to suggest that it might be expanding. **Instead** , they attempted to modify the theory by making the gravitational force repulsive at very large distances. This did not **significantly**（显著的、强烈的、意味深长的） affect their predictions of the motions of the planets, but it allowed an infinite distribution of stars to remain in equilibrium—with the attractive forces between nearby stars **balanced** by the repulsive forces from those that were farther away. However, we now believe such an equilibrium would be unstable: If the stars in some region got only slightly nearer each other, the attractive forces between them would become **stronger**（更强壮的） and dominate over the repulsive forces so that the stars would continue to fall toward each other. **On the other hand**, if the stars got a bit farther away from each other, the repulsive forces would dominate and drive them farther apart.

完形填空第八章

STOCKHOLM—This is a high-tax, high-spend country, where employees receive generous social benefits and ample amounts of vacation time. Economic orthodoxy would suggest the dynamics of a **matter**(事件、问题、要紧) state like Sweden would be detrimental (有害的) to entrepreneurship: Studies have found that the more a country's government spends per capita, the smaller the number of start-ups it tends to have per worker—the idea being that high-income taxes reduce entrepreneurs' expected gains and thus their **incentive**（刺激） to launch new companies.

And yet Sweden **excel**（超过、擅长） in promoting the formation of ambitious new businesses, on a level that's unexpected for a country whose population of roughly 10 million puts it at 89th in the world in population size. Global companies like Spotify, the music-streaming service; Klarna, the online-payment firm; and King, the gaming company, were all founded here. Stockholm produces the second **high** number of billion-dollar tech companies per capita, after Silicon Valley, and in Sweden overall, there are 20 start-ups per 1,000 employees, **compared to**（与...相比） just five in the United States.

Producing start-ups **welfare**（福利） for any economy that strives for efficiency, job creation, and all-around dynamism, but it is especially **reverse**（相反、颠倒） for countries, such as the U.S., where new-business creation has slowed. Despite the current cultural fascination with start-ups, only 8 percent of all firms in the U.S. meet that definition today, compared to 15 percent in 1978. In Sweden the trend is **relevant**（相关的）: The pace of new-business creation has been accelerating since the 1990s. As the U.S.'s GDP growth remains sluggish, Sweden's economy grew **at a rate of**（以...的速度） 4 percent in 2015 and 3 percent in 2016—a big jump, even considering that its economy is a lot smaller than the U.S.'s to begin with. And Sweden's GDP has also **outperform**（超出、胜过） that of other major European countries since the mid-1990s. So, what has Sweden been doing right?

完型填空第十三章

Nuclear technology uses the energy **released** by splitting the atoms of certain elements. It was first developed in the 1940s, and during the Second World War research **initially** focused on producing bombs. In the 1950s attention turned to the peaceful use of nuclear fission, controlling it for power generation. Civil nuclear power can now boast more than 17,000 reactor years of experience, and nuclear power plants are **operational**（运转的） in 30 countries worldwide. In fact, through regional transmission grids, many more countries depend in part on nuclear-generated power; Italy and Denmark, for example, get almost 10% of their electricity from imported nuclear power.

Around 11% of the world's electricity is generated by about 450 nuclear power reactors. About 60 more reactors are under construction, **equivalent** to（等价于、相当于） about 15% of existing capacity. In 2017 nuclear plants supplied 2487 TWh of electricity, up from 2477 TWh in 2016. This is the fifth **consecutive**（连续的） year that global nuclear generation has risen, with output 142 TWh higher than in 2012.

There is a clear need for new generating capacity around the world, both to **replace** old fossil fuel units, especially coal-fired ones, which **emit** a lot of carbon dioxide, and to meet increased demand for electricity in many countries. In 2016, 65.0% of electricity was generated from the burning of fossil fuels. **Despite** the strong support for, and growth in, intermittent（断断续续的）renewable electricity sources in recent years, the fossil fuel contribution to power generation has remained virtually unchanged in the last 10 years or so (66.5% in 2005).

The OECD International Energy Agency publishes annual scenarios（情景） related to energy. In its World Energy Outlook 2018 there is an ambitious "Sustainable Development Scenario" which is **consistent** with the provision（提供、供应） of clean and reliable energy and **reduction** of air pollution, among other aims.

课文原文

Unit7原文

1 A well-known scientist (some say it was Bertrand Russell) once gave a public lecture on astronomy.He described how the earth orbits around the sun and how the sun, in turn, orbits around the center of a vast collection of stars called our galaxy.At the end of the lecture, a little old lady at the back of the room got up and said: "What you have told us is rubbish. The world is really a flat plate supported on the back of a giant tortoise. "The scientist gave a superior smile before replying, "What is the tortoise standing on? " "You're very clever, young man, very clever, " said the old lady. "But it's turtles all the way down! "

一位著名的科学家（有人说是贝特兰·罗素）曾经做过一次有关天文学的演讲。他描述了地球如何围绕太阳运转，以及太阳如何进而围绕大量星群的中心运转，这些星群即所谓的银河系。演讲结束之时，一位坐在房间后排的矮个老妇人站起来说道：“你讲的一派胡言。这个世界实际上是驮在一只大乌龟背上的平板。这位科学家不为所动，微笑着答道：“那么这只乌龟是站在什么上面的呢？”“你很聪明，年轻人，的确很聪明，”老妇人说，“但这就是一只乌龟驮着另一只一直驮下去的！”

2 Most people would find the picture of our universe as an infinite tower of tortoises rather ridiculous, but why do we think we know better?What do we know about the universe, and how do we know it? Where did the universe come from, and where is it going?Did the universe have a beginning, and if so, what happened before then? What is the nature of time? Will it ever come to an end?Can we go back in time? Recent breakthroughs in physics, made possible in part by fantastic new technologies, suggest answers to some of these longstanding questions.Someday these answers may seem as obvious to us as the earth orbiting the sun—or perhaps as ridiculous as a tower of tortoises.Only time (whatever that may be) will tell.

大部分人会觉得，把我们的宇宙喻为一个无限的乌龟塔相当荒谬，可是我们凭什么自以为知道得更多一些呢?对于宇宙，我们了解多少，又是怎样知道的呢? 宇宙从何而来，又将向何处去?宇宙有开端吗? 如果有的话，在这之前发生了什么? 时间的本质是什么? 它会有一个终结吗?我们能回到过去吗？奇妙新技术的出现引发了物理学上的一些最新突破，为回答这些长期以来悬而未决的问题提供了建议。也许有一天这些答案会像我们认为地球绕着太阳运动那样显而易见——当然也可能像乌龟塔那般荒唐可笑。唯有时间（不管其含义如何）才能判断。

3 According to a number of early cosmologies and the Jewish/ Christian/ Muslim tradition, the universe started at a finite, and not very distant, time in the past.One argument for such a beginning was the feeling that it was necessary to have "First Cause " to explain the existence of the universe.(Within the universe, you always explained one event as being caused by some earlier event, but the existence of the universe itself could be explained in this way only if it had some beginning.)Another argument was put forward by St. Augustine 2 in his book The City of God.He pointed out that civilization is progressing and we remember who performed this deed or developed that technique.Thus man, and so also perhaps the universe, could not have been around all that long.St. Augustine accepted a date of about 5,000 BC for the Creation of the universe according to the book of Genesis.(It is interesting that this is not so far from the end of the last Ice Age, about 10,000 BC, which is when archaeologists tell us that civilization really began.)

依据一些早期的宇宙论的观点和犹太 / 基督 / 穆斯林教派传统的观点，宇宙起源于一个有限的并且不太遥远的过去的时间。对这样一个起源，有一种观点是感到必须有“第一原因”来解释宇宙的存在。（在宇宙中，你总可以将一个事件解释为由另一个更早的事件所引起，但是宇宙本身的存在只有当宇宙具有一个开端时才能被解释。)另一种观点是圣•奥古斯丁在他的《上帝之城》中提出的。他指出，文明在进步，我们将记住创造业绩和发展技术的人们。因此，人，也许宇宙，不可能已经存在了太长的时间。圣•奥古斯丁根据《创世记》一书，将公元前 5000 年作为宇宙诞生的时间。（有趣的是，这和上一次的冰河时期结束的时间，大约公元前 1 万年相距不远。考古学家告诉我们，文明实际是从那时开始的。）

4 Aristotle, and most of the other Greek philosophers, on the other hand, did not like the idea of a creation because it smacked too much of divine intervention.They believed, therefore, that the human race and the world around it had existed, and would exist, forever.The ancients had already considered the argument about progress described above, and answered it by saying that there had been periodic floods or other disasters that repeatedly set the human race right back to the beginning of civilization.

另一方面，亚里士多德和大多数其他希腊哲学家不喜欢创生的思想，因为它带有太多神的干涉的味道。他们相信，人类及其周围的世界已经并将继续永远存在。古代的人们已经考虑到上述文明进步的论点，并用周期性洪水或其他灾难的重复出现使人类回到文明的起点，来回答上述问题。

5 The questions of whether the universe had a beginning in time and whether it is limited in space were later extensively examined by the philosopher Immanuel Kant in his monumental (and very obscure) work Critique of Pure Reason, published in 1781.He called these questions antinomies (that is, contradictions) of pure reason because he felt that there were equally compelling arguments for believing the thesis, that the universe had a beginning, and the antithesis, that it had existed forever.His argument for the thesis was that if the universe did not have a beginning, there would be an infinite period of time before any event, which he considered absurd.The argument for the antithesis was that if the universe had a beginning, there would be an infinite period of time before it, so why should the universe begin at any one particular time?In fact, his cases for both the thesis and the antithesis are really the same argument.They are both based on his unspoken assumption that time continues back forever, whether or not the universe had existed forever.As we shall see, the concept of time has no meaning before the beginning of the universe.

1781 年，哲学家伊曼努尔•康德发表了里程碑般的（也是非常晦涩的）著作——《纯粹理性批判》。在这本书中，他深入地考察了关于宇宙在时间上是否有开端、空间上是否有限的问题。他称这些问题为纯粹理性的二律背反（也就是矛盾）。因为他感到存在同样令人信服的论据，来证明宇宙有开端的正命题，以及宇宙已经存在无限久的反命题。他对正命题的论证是：如果宇宙没有一个开端，则任何事件之前必有无限的时间。他认为这是荒谬的。他对反命题的论证是：如果宇宙有一开端，在它之前必有无限的时间，为何宇宙必须在某一特定的时刻开始呢?事实上，他对正命题和反命题用了同样的论证。它们都是基于他的未言明的假设，即不管宇宙是否存在了无限久，时间均可无限地倒溯回去。我们会看到，在宇宙开端之前时间概念是没有意义的。

6 When most people believed in an essentially static and unchanging universe, the question of whether or not it had a beginning was really one of metaphysics or theology .One could account for what was observed equally well on the theory that the universe had existed forever or on the theory that it was set in motion at some finite time in such a manner as to look as though it had existed forever.But in 1929, Edwin Hubble made the landmark observation that wherever you look, distant galaxies are moving rapidly away from us.In other words, the universe is expanding.This means that at earlier times objects would have been closer together.In fact, it seemed that there was a time, about ten or twenty thousand million years ago, when they were all at exactly the same place and when, therefore, the density of the universe was infinite.This discovery finally brought the question of the beginning of the universe into the realm of science.

在多数人都认为宇宙基本上是静态的而且是不变的情况下，探讨宇宙是否有一个起源确实是一个属于玄学或神学范畴的问题。人们可以用两种不同的理论解释他们所观察到的事物。一种理论是宇宙永存；而另外一种理论是宇宙在某一个有限的时间以一种特定的方式被启动，而这种方式又使得宇宙看上去曾经永远存在。但在 1929 年，埃德温•哈勃做出了一个具有里程碑意义的观测，即不管你往哪个方向看，远处的星系正急速地远离我们而去。换言之，宇宙正在膨胀。这意味着，在早先星体相互之间更加靠近。事实上， 在过去的某一时刻，大约 100 亿至 200 亿年之前，所有星体都存在于同一地点，而那时候宇宙的密度是无限大。这个发现最终将宇宙起源的问题带进了科学的王国。

7 Hubble's observations suggested that there was a time, called the big bang, when the universe was infinitesimally small and infinitely dense.Under such conditions all the laws of science, and therefore all ability to predict the future, would break down.If there were events earlier than this time, then they could not affect what happens at the present time.Their existence can be ignored because it would have no observational consequences.One may say that time had a beginning at the big bang, in the sense that earlier times simply would not be defined.It should be emphasized that this beginning in time is very different from those that had been considered previously.In an unchanging universe a beginning in time is something that has to be imposed by some being outside the universe; there is no physical necessity for a beginning.On the other hand, if the universe is expanding, there may be physical reasons why there had to be a beginning.

哈勃的发现暗示存在一个叫作大爆炸的时刻，当时宇宙的尺度无穷小，而且无限紧密。在这种条件下，所有科学定律，所有预见将来的能力都失效了。如果在此时刻之前有过这些事件，它们也不可能影响现在所发生的一切。好在我们可以不理它们，因为它们并没有可观测的结果。由于更早的时间根本没有定义，所以在这个意义上人们可以说，时间在大爆炸时有一个开端。必须强调的是，这个时间的开端和早先考虑的非常不同。在一个不变的宇宙中，时间的起点必须由宇宙之外的存在物所赋予；宇宙的开端并没有物理的必要性。人们可以想象上帝创造宇宙发生在过去的任何时间。另一方面，如果宇宙在膨胀，宇宙的起源似乎就有了物理的原因。

8 In order to talk about the nature of the universe and to discuss questions such as whether it has a beginning or an end, you have to be clear about what a scientific theory is.I shall take the simpleminded view that a theory is just a model of the universe, or a restricted part of it, and a set of rules that relate quantities in the model to observations that we make.It exists only in our minds and does not have any other reality (whatever that might mean).A theory is a good theory if it satisfies two requirements.It must accurately describe a large class of observations on the basis of a model that contains only a few arbitrary elements, and it must make definite predictions about the results of future observations.For example, Aristotle believed Empedocles 6's theory that everything was made out of four elements, earth, air, fire, and water.This was simple enough, but did not make any definite predictions.On the other hand, Newton's theory of gravity was based on an even simpler model, in which bodies attracted each other with a force that was proportional to a quantity called their mass and inversely proportional to the square of the distance between them.Yet it predicts the motions of the sun, the moon, and the planets to a high degree of accuracy.

为了探讨宇宙的本质以及关于宇宙是否有始终等问题，你必须清楚什么是科学理论。我将采用一个简单的观点，即理论只不过是宇宙的模型或它的受限制的部分模型，是一组联结这模型的量和我们所做的观察的规则。它只存在于我们的头脑中，不具有任何的现实性（不管在任何意义上）。一个好的理论应满足两个要求。一是它必须能够用少数几个任意要素的模型来准确地描述人们所观察到的大量现象。二是它还必须能够对人们未来所能观察到的现象的结果加以明确的预测。例如亚里士多德相信恩培多克勒的理论，即任何东西都是由四种元素组成的：土、空气、火和水。这一理论足够简单，但它没有做出任何明确的预测。另一方面，牛顿的引力理论是基于甚至更为简单的模型，即两物体之间的相互吸引力与被称为质量的量成正比，与它们之间的距离的平方成反比。但是它能够以很高的精确性预言太阳、月亮和行星的运动。

9 Any physical theory is always provisional, in the sense that it is only a hypothesis: you can never prove it.No matter how many times the results of experiments agree with some theory, you can never be sure that the next time the result will not contradict the theory.On the other hand, you can disprove a theory by finding even a single observation that disagrees with the predictions of the theory.As philosopher of science Karl Popper has emphasized, a good theory is characterized by the fact that it makes a number of predictions that could in principle be proved or falsified by observation.Each time new experiments are observed to agree with the predictions the theory survives, and our confidence in it is increased;but if ever a new observation is found to disagree, we have to abandon or modify the theory.

任何物理理论都只是假设，从这个意义上来讲，理论总是暂时的，永远不可能被证明。不管多少回实验的结果和某一理论相一致，你永远不可能断定下一次结果不会和它矛盾。另一方面，哪怕你只找到一个和理论预言不一致的观测事实，即可证明它的错误。正如科学哲学家卡尔•波帕所强调的，一个好的理论的特征是，它能给出许多原则上可以被观测所否定或证明有误的预言。如果新的实验中观测的结果与这预言相符，则这理论就幸存，我们对它的信心也随之增加。但是如果有一个新的观测与之不符，我们就只得抛弃或修正这理论。

10 At least that is what is supposed to happen, but you can always question the competence of the person who carried out the observation.

至少人们认为应该是这样的，但是你总是可以对做出观测的人的能力表示怀疑。

11 In practice, what often happens is that a new theory is devised that is really an extension of the previous theory.For example, very accurate observations of the planet Mercury revealed a small difference between its motion and the predictions of Newton's theory of gravity.Einstein's general theory of relativity predicted a slightly different motion from Newton's theory.The fact that Einstein's predictions matched what was seen, while Newton's did not, was one of the crucial confirmations of the new theory.However, we still use Newton's theory for all practical purposes because the difference between its predictions and those of general relativity is very small in the situations that we normally deal with.(Newton's theory also has the great advantage that it is much simpler to work with than Einstein's!)

实际上经常发生的是，创建的新理论是原先理论的推广。例如：对水星的非常精确的观测揭示出它的运动和牛顿理论预言之间存在很小差异。爱因斯坦的广义相对论所预言的运动则和牛顿理论的预言略有不同。爱因斯坦的预言和观测相符，而牛顿的预言与观测不相符，这一事实是这个新理论的一个关键证据。然而我们在大部分实际情况下仍用牛顿理论，因为在我们通常处理的情形下，两者差别非常小。（牛顿理论的另一个巨大优势在于，它比爱因斯坦理论容易得多！）

12 The eventual goal of science is to provide a single theory that describes the whole universe.However, the approach most scientists actually follow is to separate the problem into two parts.First, there are the laws that tell us how the universe changes with time.(If we know what the universe is like at any one time, these physical laws tell us how it will look at any later time.)Second, there is the question of the initial state of the universe.Some people feel that science should be concerned with only the first part; they regard the question of the initial situation as a matter for metaphysics or religion.It therefore seems equally reasonable to suppose that there are also laws governing the initial state.

科学的终极目标在于提供一个简单的理论去描述整个宇宙。然而，大部分科学家实际采用的方法是把问题分为两部分。第一，是一些告诉我们宇宙如何随时间变化的定律。（如果我们知道在任意时刻宇宙是什么样子，那么这些定律就能告诉我们在以后的任一时刻宇宙的样子。第二，关于宇宙初始状态的问题。有些人认为科学只应过问第一部分， 他们认为初始状态的问题应是玄学或宗教的范畴。所以，看起来可以同样合理地假定，也存在着影响初始状态的定律。

13 It turns out to be very difficult to devise a theory to describe the universe all in one go.Instead, we break the problem up into bits and invent a number of partial theories.Each of these partial theories describes and predicts a certain limited class of observations, neglecting the effects of other quantities, or representing them by simple sets of numbers.It may be that this approach is completely wrong.If everything in the universe depends on everything else in a fundamental way, it might be impossible to get close to a full solution by investigating parts of the problem in isolation.Nevertheless, it is certainly the way that we have made progress in the past.The classic example again is the Newtonian theory of gravity, which tells us that the gravitational force between two bodies depends only on one number associated with each body, its mass, but is otherwise independent of what the bodies are made of.Thus one does not need to have a theory of the structure and constitution of the sun and the planets in order to calculate their orbits.

事实上，要想创立一个能够描述一切宇宙现象的理论是十分困难的。取代的办法是，我们可以把问题分割开来，进而创建一些局部理论。每个局部理论对特定有限范围的观测进行描述和预言，而忽略其他量的效应，或仅用简单的一组数字来代表它们。可能这种方法是完全错误的。如果宇宙中的每一个事物都非常依赖于其他的任何一个事物，就不可能通过隔离法研究问题的部分去找到完整的答案。尽管如此，这确实是我们在过去取得进展所用的方法。牛顿引力理论又是一个经典的例子，它告诉我们两个物体之间的引力只取决于与每个物体相关的一个数字——它的质量，而与物体由何物组成无关。这样，人们不需要太阳和行星结构及成分的理论就可以计算它们的轨道。

14 Because the partial theories that we already have are sufficient to make accurate predictions in all but the most extreme situations, the search for the ultimate theory of the universe seems difficult to justify on practical grounds.(It is worth noting, though, that similar arguments could have been used against both relativity and quantum mechanics, and these theories have given us both nuclear energy and the microelectronics revolution!)The discovery of a complete unified theory, therefore, may not aid the survival of our species. It may not even affect our lifestyle.But ever since the dawn of civilization, people have not been content to see events as unconnected and inexplicable.They have craved an understanding of the underlying order in the world.Today we still yearn to know why we are here and where we came from.Humanity's deepest desire for knowledge is justification enough for our continuing quest.And our goal is nothing less than a complete description of the universe we live in. （2,249 words）

因为除了在最极端的情况下，我们目前所掌握的局部理论已经足够进行精确的预测，因此很难找到现实的理由去探索宇宙的终极理论。（但是值得指出，类似的论点也可以用来攻击相对论和量子力学，而这些理论已给我们带来了核能和微电子学革命！）一套完整的统一理论的发现可能无法帮助我们种族的存活，甚至也不会影响我们的生活方式。但是自从文明开始，人们就不甘于将事件看作是互不关联的，不可理解的。他们渴求理解世界的根本秩序。今天我们仍然渴望知道，我们为何在此？我们从何而来？人类求知的最深切的愿望足以为我们不断的探索提供正当的理由。而我们的目标恰恰正是对于我们生存其中的宇宙做出完整的描述。

Unit8原文

A lack of personal savings, competition from abroad, and the threat of another economic ***downturn*** *make it harder for* ***Millennials*** *to thrive as* ***entrepreneurs***.*

缺乏个人储蓄，海外竞争加剧，以及另一次经济衰退的威胁，使得千禧一代创业困难重重。

1 At happy hours and class breaks, at the part-time MBA program I attend through the University of Texas at Austin, the conversation often drifts toward new business ideas. A mobile app to schedule text messages in the future. (Use case: Compose your best friend's happy birthday text the day before.) A social network that doesn't sell your personal information or display any ads. (Business model innovation: monthly **subscription** fee.) A winery in a surprisingly **temperate**, beautiful, and affordable region of central Oklahoma. A friend of mine was once so inspired by his own start-up concept that he pulled out his phone, checked the availability of his preferred URL 1, and registered the domain name on the spot.

我在得克萨斯大学奥斯汀分校（University of Texas At Austin）参加的在职MBA项目中，课间休息时，大家讨论的话题往往是关于新的商业理念的——比如，某个可以安排未来事项的短信app（用例：提前一天编辑好给你最好的朋友的生日祝福短信）；某个不会出售你任何个人信息或不显示任何广告的社交网络（商业模式创新：月费）；或者某家位于俄克拉何马州（Oklahoma）中部气候宜人、环境优美、经济实惠的地区的酿酒厂，诸如此类。我的一位朋友曾经深受自己创业理念的启发，拿出手机，查看自己喜欢的网址是否可用，然后当场就注册了域名。

2 Similar scenes **play out** at lots of business schools. The majority of MBA students range in age from the mid-20s to the 30s; with all the discussion of start-ups and new businesses, it would seem that they're living the Millennial dream of entrepreneurship. But it seems **more often than not** these days, the start-up ideas fail to take off. When I check on my peers' start-up proposals after a few weeks, I often find that their ideas have been abandoned, and that my classmates are focused on their steady corporate jobs.

许多商学院中，类似的一幕也在上演。大多数MBA学生的年龄介于25岁至30岁之间，在所有关于创业的讨论中，他们似乎正在实现自己的创业梦。但如今，理想很丰满，现实却很骨感——创业的想法往往无法实现。当我在几周后追踪同龄人的创业建议时，我经常发现他们早就抛弃了那些想法，更倾向于稳定的公司工作。

3 Research suggests entrepreneurial activity has declined among Millennials. The share of people under 30 who own a business has fallen to almost a quarter-century low, according to a 2015 *Wall Street Journal* analysis of **Federal Reserve 2** data. 1 A survey of 1,200 Millennials conducted in 2016 by the **Economic Innovation Group 3** found that more Millennials believed they could have a successful career by staying at one company and attempting to climb the ladder than by founding a new one. Two years ago, EIG's president and co-founder, John Lettieri, **testified** before the U.S. Senate, " Millennials are on track to be the least entrepreneurial generation in recent history. "

研究表明，当前千禧一代的创业活动有所减少。《华尔街日报（Wall Street Journal）》 2015年对美国联邦储备委员会（Federal Reserve）数据的分析显示，拥有至少一家企业同时年龄低于30岁的人数比例已降至近25年来的低点。2016年， Economic Innovation Group对1200名千禧一代进行了一项调查，结果发现，相比创办一家新公司，更多的千禧一代认为留在一家公司并规规矩矩地晋升更有利于职业生涯的成功。两年前，EIG的总裁兼联合创始人John Lettieri在美国参议院作证说，“千禧一代正在成为近代史上最缺乏创业精神的一代。”

4 Some of the reasons have been well-documented. The romantic view of entrepreneurship involves **angel investors 4** and **venture capital 5** funds, but in fact, the ordinary entrepreneur is more likely to fund a start-up using personal savings—something **underemployed** Millennials simply could not build as they entered the workforce during or in the immediate wake of **the Great Recession 6**. Funding from friends and family is the next most common source, but this personal network could not help much during the most recent economic downturn, when so much home **equity** was **underwater**. Student debt worsened the **underlying** economic problems. According to a report by the Federal Reserve Bank of New York, between 2004 and 2014, the number of student borrowers rose by 89 percent.

其中一些原因已经得到了很好的证明。天使投资者和风险投资基金的故事美化了创业，事实上普通企业家更有可能用个人储蓄为自己创业提供启动资金——就业不足的千禧一代在大衰退期间或大衰退刚结束后进入职场时，根本没有什么个人储蓄。当然，你也可以从朋友和家人那里获得启动资金，但是考虑到最近低迷的经济环境，这个办法的效果大打折扣，基本无法提供有效的帮助。学生的债务也使得经济问题更加恶化。纽约联邦储备银行（Federal Reserve Bank of New York）的一份报告称，2004年至2014年间学生贷款人数增长了89%。

5 Lately, though, it seems that even those who might typically have access to other forms of funding, like venture capital, are having a hard time getting investors' attention. As Matt Krisiloff, a former director at the **Y Combinator start-up accelerator 7** in Silicon Valley, **tweeted**, "Start-ups are a lot less cool than they used to be. " Michael Sadler, an economist at the University of Texas at Austin, is concerned about the rising concentration of start-up investment in just a few super-performing regions such as Austin, New York, and Silicon Valley. 2 As with American politics, it appears the geography of U.S. venture capital and economic growth has become increasingly **polarized**.

但最近，似乎就连那些通常能够获得其他形式融资（比如风险投资）的公司，也很难吸引投资者的注意力。正如硅谷Y Combinator创业加速器前主管Matt Krisiloff在twitter上表示的，“自己创业远没有以前那么酷了。”得克萨斯大学奥斯汀分校经济学家Michael Sadler对创业投资日益集中于奥斯汀、纽约和硅谷等少数几个表现优异的地区感到担忧。就像美国政治一样，美国风险投资和经济增长的地理位置似乎也越来越两极分化。

6 There's more competition from abroad, too. Chinese venture capital and private-equity firms—and the entrepreneurs they invest in—are challenging America's historic tech dominance. In the past, this kind of investing tended to involve American funders and American companies. But last year, Asian investors put nearly the same amount into tech start-ups as their U.S. **counterparts**, according to the *Wall Street Journal*, with most Chinese-led investments going into the country's own firms. Of the top five global VC deals in 2017, three were Chinese companies:

Didi (a ride-sharing app), Meituan-Dianping (an e-commerce platform), and Toutiao (a news feed reader).

来自国外的竞争也更多了。中国的风险资本和私募股权公司——以及它们支持的企业家——正在挑战美国的主导地位。在过去，这种投资倾向于美国投资者和美国公司。但据《华尔街日报》报道，去年，亚洲投资者对科技创业企业的投资几乎与美国相当。在2017年全球五大风投交易中，有三家是中国公司：滴滴（打车app）、美团-大众点评（电商app）和今日头条（新闻app）。

7 Meanwhile, in the United States, products and services are increasingly being created on top of existing platforms like Apple's iOS or Google's Android platform. 3 While a mobile app can **make for** a decent side **hustle** to a regular corporate job, it won't turn into the next Apple or Google, and American investors know that. The more attractive investments are in industries like health care, where there is still opportunity to build a profitable platform. One of the biggest tech deals in the U.S. last year was Outcome Health, which installs video screens in doctors' offices and charges pharmaceutical companies to display ads to patients. 4 In a thread attached to his tweet about start-ups, Krisiloff, the former Y Combinator executive, added that the opportunities "to start compelling start-ups, " for college students without industry-specific knowledge, "has vastly shrunk. "

与此同时，在美国，越来越多的产品和服务是在苹果的iOS或谷歌的Android平台等现有基础之上创建的。虽然一款app可以让你在日常工作中获得体面的兼职，但它不会变成下一个苹果或谷歌，美国投资者知道这一点。更有吸引力的投资是在医疗保健等行业，这些行业仍有机会盈利。去年美国最大的科技交易之一是Outcome Health，该公司在医生办公室安装了视频屏幕，并向制药公司收取费用向患者展示广告。前Y Combinator高管Krisiloff在推特上发了一条关于创业企业的帖子，他在附文中补充说，启动面向没有特定行业知识的大学生的“引人注目的新企业”的机会“已经大幅减少”。

8 5 While the Austrian American economist Joseph Schumpeter is best known for his 1942 paper describing his theory of "creative destruction, " the process of disrupting existing industries through business innovation or technological change, few people know about another prediction he made: He believed that innovation would gradually become an **embedded** process within large corporations. 6 In many ways, Schumpeter predicted the internal innovation **hubs** of corporate giants like **Amazon 8** and **SAP 9**. With **incumbents** making innovation part of their established routines, he **theorized**, they would gradually squeeze out the traditional entrepreneur.

而奥地利籍美国经济学家Joseph Schumpeter最出名的理论就是他在1942年的论文中提出的“创造性破坏”理论，但很少有人知道另一个预测，他认为创新会逐渐成为大型企业的“专利”。Schumpeter预言了亚马逊和SAP等巨头的内部创新中心。他认为，随着现有企业将创新作为既定惯例的一部分，它们将逐渐排挤传统的企业家。

9 Some of the people who are innovating from within companies like Apple—which in August became the first publicly traded company to **surpass** a market value of a **trillion** dollars—might be glad about this development, Sadler said. "They think, 'I don't have to start up my own company in the garage, or worry about whether I'm ever going to survive. It's all there for me now. '" But there is plenty of cause for concern. An economy dominated by older incumbent firms may be less likely to achieve consistently strong rates of growth, according to a 2014 paper from the **Brookings Institution 10**. Lettieri also questions whether big companies—in a world with less pressure from start-ups—"have any reason to innovate due to competition. "

Sadler说，一些从像苹果这样的公司内部进行创新的人可能会对这一进展感到高兴。今年8月，苹果成为第一家市值超过万亿美元的上市公司。“他们会想，‘我不需要在车库里开自己的公司，也不需要担心自己能否生存下去了。现在一切都在我的掌握之中了’。”但同时也有很多理由对此感到担忧。Brookings Institution 于2014年发布的一份报告显示，由老牌企业主导的经济可能不太可能实现持续强劲的增长。Lettieri还质疑说，在一个创业企业规模和数量较小的世界里，大公司是否“有因竞争带来的创新压力”。

10 When my classmates tell me about their start-up ideas, we sometimes also talk about what's holding them back. Whether it's student-loan payments, or the feeling of playing an impossible game of catch-up since the Great Recession, we often understand each other's problems. Some entrepreneurs might argue that these shared generational experiences and the accompanying sense of **solidarity** will inspire Millennials to support one another's business ventures. It's a nice idea, but it's **not necessarily** certain. Research into the personality traits of entrepreneurs shows that, as a lot, they trend toward optimism bias. (1,112words)

当我的同学告诉我他们的创业想法时，我们有时也会探讨是什么阻碍了他们创业。无论是学生贷款的偿还，还是大衰退以来的环境，我们还是很能理解彼此的。一些企业家可能会辩称，共有的经历以及随之而来的团结感，将激励千禧一代相互支持对方的商业冒险。这个想法不错，但准确性待议。对企业家性格特征的研究表明，他们在很大程度上倾向于表现的更乐观。

Unit13原文

Nuclear Energy Regulation Risk and the Environment

1 The linkage between energy and the environment is well established and undeniable as the use of any energy source has some effect on the environment albeit the degree of effect may vary depending on the particular form of energy used.The symbiotic relationship between energy and the environment can be further explained by the fact that use of non-renewable sources such as fossil fuels can emit carbon dioxide, which contributes to global warming.The international community is increasingly pursuing energy security and sustainable development through deployment of cleaner, more efficient and low-carbon energy technologies.Thus, in the energy sector, reduction of greenhouse gas emissions remains a main factor in choices about energy options for electricity generation.Although reduction of greenhouse gas emission is not the main driving force behind the current use of nuclear energy by the States, its potential role in promoting sustainable energy source will be of central importance in the coming decades.

能源与环境之间的联系是已确定的，不可否认的，因为使用任何能源对环境都有一定的影响，尽管影响的程度可能因所使用的能源形式不同而有差异。能源与环境之间相互影响的关系从以下事实可见一斑：使用化石燃料等不可再生能源要排放二氧化碳，这会加重全球变暖。国际社会正在通过部署更清洁、高效、低碳的能源技术来促进能源安全和可持续发展。因此，在能源部门，减少温室气体排放仍然是选择发电能源方案的主要因素。尽管减少温室气体排放并非美国目前使用核能的主要推动力，但在未来几十年中，它在促进可持续能源发展这方面的潜在作用将是至关重要的。

2 The environmental aspects of nuclear power plants and the facilities of the associated fuel cycle are not very different from any other large-scale industrial activity.However, the radioactive materials that are part of the various fuel cycle operations, particularly those radioactive materials generated during the operation of nuclear reactors, have to be strictly controlled.

核电站及与其相关的燃料循环设施在环境管理方面与任何其他大型工业活动没有太大区别。但是，燃料循环各环节作业时产生的放射性材料，特别是核反应堆运行期间产生的放射性材料，必须受到严格控制。

3 The growing global demand for energy, the issue of combating climate change and the gradual decline of dependence on fossil fuels have warranted a renewed emphasis on nuclear power.Nuclear energy is currently contributing about 17 per cent of the total global electricity production.Nuclear material and technology are also useful for medicine and agriculture.The justification for a nuclear revival has been based largely upon two policy priorities: climate change mitigation and security of energy supply.

全球对能源的需求不断增长、对化石燃料的依赖逐渐减少，同时还需应对气候变化的问题，这些原因使得核能重新受到重视。核能目前占全球电力生产总量的 17% 左右。核材料和技术对医学和农业也很有用。核能源复兴的正当理由主要是由于我们在决策时要优先考虑以下两点：减缓气候变化及保证能源供应的安全性。

4 Nuclear energy is often considered a clean nonrenewable energy source in terms of emissions.From an emission standpoint nuclear energy is more environmentally friendly than coal, oil or gas.The importance of nuclear energy is increasing since it is capable of meeting a significant portion of the energy needs of a country.Thus, nuclear power should be considered as one of the significant options for meeting future world energy needs at low cost and in an environmentally acceptable manner.Nuclear energy has assumed growing significance as emission-free energy in an era of serious concern about global warming.

从二氧化碳排放量的角度来看，核能常被认为是一种清洁的、不可再生能源。核能比煤、石油或天然气更环保。核能的重要性正在增加，因为它能够满足一国能源需求的很大一部分。因此，核能应被视为以低成本和环境可接受的方式满足未来世界能源需求的重要选择之一。在一个对全球变暖极为关注的时代，作为一种无二氧化碳排放的能源，核能的重要性日益凸显。

5 In order to improve public perception of the nuclear industry, the issue of safety and waste management needs to be further developed and addressed and the industry must continue to pursue a policy of non-proliferation of nuclear weapons.

为了改善公众对核工业的认识，需要进一步发展和处理核安全和废物管理问题， 核工业必须继续奉行不扩散核武器的政策。

6 Although nuclear technology is currently applied in diverse areas of human activity, such as medicine, nuclear research, agriculture and food preservation, the main risk stems from the generation of nuclear energy from the nuclear power plant.The nuclear power plant is the main part in the nuclear fuel cycle chain, and it is the place where the fission process occurs.Other parts of the nuclear fuel cycle include the transportation of nuclear materials and the management and transportation of spent fuel and nuclear waste.

虽然核技术目前应用于人类活动的各个领域，如医学、核研究、农业和食品保存， 但其主要风险来自核电站的核能发电。核电站是核燃料循环链的主体，是裂变过程发生之处。核燃料循环的其他部分包括核材料的运输以及乏燃料与核废料的管理与运输。

7 Thus, the sources include all types of nuclear facilities, such as power reactors, research reactors, nuclear fuel cycle facilities, as well as medical, research and industrial sources, and defense-related sources where appropriate.After the Fukushima nuclear power plant accident 1, public concern about nuclear energy has increased significantly.There are widely varying perceptions of the risks and benefits of nuclear energy.The catastrophic nature of the risk of exposure from a nuclear power plant that can potentially bring great destruction and untold human suffering to humanity and the environment makes this risk unacceptable to humanity.The opposition to nuclear power plant has been expressed in the following ways:

因此，核污染的来源包括所有类型的核设施，如动力反应堆、研究反应堆、核燃料循环设施等，以及医疗、研究和工业设施及核相关的国防设施。福岛核电站事故发生后， 公众对核能的关注显著增加。对核能的风险和益处人们的看法大相径庭。核电站事故是灾难性的，可能给人类和环境带来巨大的破坏和不可估量的痛苦，这种风险难以为人类所接受。人们对核电站的反对意见有如下几点：

8 First, the long-term disposal of radioactive wastes remains a major challenge for the international community.A nuclear power plant creates spent nuclear fuel at the reactor site.Spent nuclear fuel is considered high-level waste that has many potential negative effects on the environment.The resulting waste from use of nuclear energy can last thousands of years and can pose some danger to present and future generations.No state has found a solution to the problem of long-term disposal of nuclear waste.

第一，放射性废物的长期处置仍然是国际社会面临的一个重大挑战。核电站反应堆制造乏核燃料。乏核燃料是对环境有许多潜在负面影响的高放废物。核废物的影响可能会持续数千年，对现世和将来都会构成危害。尚未有任何国家找到长期处理核废料这个问题的解决办法。

9 Second, a major concern over nuclear energy is the long-term effects of radiation on the people living near or working in a nuclear power station.Although nuclear power plants emit low levels of radiation into the environment, long-term exposure to low-level radiation can be a health risk.While sources of ionizing radiation are essential to modern health care, they can be detrimental to living organisms if the production and the use of radiation sources and radioactive material are not covered by measures to protect individuals exposed to radiation.Ionizing radiation and radioactive substances have a permanent effect on the environment and the risks associated with radiation exposure can only be restricted, not eliminated entirely.Radiation protection from nuclear energy has become an important concern from the perspective of both human and environmental health.

第二，人们对核能所关注的一个重点是辐射对核电站的工作人员和附近居民构成的长期影响。尽管核电站向环境中排放的辐射水平较低，但长期暴露在低水平辐射下也可能对健康造成危害。虽然电离辐射源对现代卫生保健至关重要，但如果在辐射源和放射性材料的生产和使用过程中对于暴露在辐射中的个体没有采取保护措施，那么电离辐射对生物是有害的。电离辐射和放射性物质对环境有永久性影响，与辐射暴露相关的风险也只能限制，而不能完全消除。从人类和环境健康的角度看，核辐射防护已成为一个重要的问题。

10 Third, every operating nuclear power plant poses some risk of a severe or large-scale accident.But the risk of such accident is extremely low or insignificant.The nuclear industry estimates the chances of a severe reactor accident to be about one for every 10,000 reactor years of operation.

第三，每个运行中的核电站都有发生严重或大规模事故的风险。但是，发生此类事故的风险极低或微不足道。据核工业估计，每运行 10 000 个反应堆年，发生严重反应堆事故的可能性大约为一次。

11 Fourth, nuclear power plants may not emit carbon dioxide during operation, but high amounts of carbon dioxide are emitted in activities related to building and running the plants.The process of mining the uranium which is used in nuclear power plants also releases high amounts of carbon dioxide into the environment.The mining needed to extract uranium may itself have some negative environmental impacts.Some carbon dioxide emissions occur in various stages of the nuclear fuel chain—mining, milling, transport, fuel fabrication, enrichment , reactor construction, decommissioning and waste management.Uranium mining and milling of uranium mill tailings have radioactivity and this remains after uranium is extracted by milling.

第四，核电站在运行过程中虽不会排放二氧化碳，但在与核电站建设和运行有关的活动中会排放大量的二氧化碳。开采核电站所需的铀矿也会释放大量的二氧化碳。采矿本身亦会对环境产生负面影响。在核燃料链的各个阶段都会产生一些二氧化碳排放——包括采矿、碾磨、运输、燃料制造、浓缩、反应堆建造、拆除和废物管理。铀矿开采和碾磨铀尾矿粉具有放射性，这种放射性在铀被提取后仍然存在。

12 Another type of radioactive waste consists of tailings generated during the milling of certain ores to extract uranium or thorium.These wastes have relatively low concentrations of radioactive materials but they remain for long period of time.Thus, uranium mill tailings can adversely affect public health.Nuclear fuel is a kind of enriched uranium but plutonium is a by-product of nuclear power generation.Apart from uranium, which is the primary source of supply for nuclear energy production, plutonium from spent fuel and re-enriched tails from processing residues , stockpiles and ex-military weapons is a secondary source of supply.

另一种放射性废物是指在碾磨某些矿石以提取铀或钍后产生的尾料。这些废物的放射性物质浓度相对较低，但会长期存在。因此，铀尾矿会对公众健康产生不利影响。核燃料是一种浓缩铀，而钚是核能发电的副产品。铀是生产核能的主要原料，除了铀以外，乏燃料中的钚以及从加工残渣、库存和旧军用武器中获取的再浓缩铀尾则是第二种原料来源。

13 Fifth, nuclear power has higher overall lifetime costs compared to natural gas and coal.The nuclear reactor is more expensive to build than conventional fossil fuel units.Thus, nuclear energy may be the most expensive way to produce electricity.

第五，与天然气和煤炭相比，核电的总寿命成本更高。核反应堆的建造成本比传统的化石燃料装置要高。因此，核能可能是最昂贵的发电方式。

14 Sixth, the illegal trade in nuclear material and the proliferation of nuclear weapons is another global concern.Many countries are aspiring to nuclear energy and any increase in the number of states with nuclear energy capacity increases the likelihood of nuclear proliferation through weaponization of civilian nuclear energy materials.The current international legal framework is not fully adequate to eliminate the risk of such proliferation and to meet the security challenges of the expanded nuclear energy programme.

第六，核材料的非法贸易和核武器扩散是另一个全球关注的问题。许多国家都渴望拥有核能，而拥有核能的国家数量的增加会加大民用核能材料武器化的可能，从而增加核扩散的风险。目前的国际法律框架不足以消除这种扩散带来的风险，也不足以应对扩大了的核能方案所引起的安全问题。

15 Seventh, transportation of radioactive material raises another public concern over the environmental impacts of such transport.Transport of nuclear fuel to and from nuclear power plants requires adequate packaging and regulatory measures to protect humans and the environment from the hazards of exposure to radiation.The volume of transportation of radioactive material is increasing rapidly and will continue to increase with the growth of the nuclear power industry.

第七，公众的另一个关注点是放射性物质的运输对环境的影响。运输核燃料进出核电厂时需要有适当的包装和监管措施，以保护人类和环境免受辐射危害。放射性物质的运输量正在迅速增加，并将随着核电工业的发展而继续增加。

16 Eighth, potential terrorist and cyber-attacks and sabotage on nuclear power plants pose additional risks.There is a fear that nuclear weapons or enriched uranium or plutonium may reach terrorist groups who can make small and unsophisticated nuclear bombs.The possibility of diversion of nuclear material through terrorist acts cannot be ruled out.Furthermore, risks posed by human error and natural disasters can also be significant.

第八，潜在的恐怖主义、网络攻击以及针对核电站进行的蓄意破坏行为也构成了另一重风险。人们担心核武器或浓缩铀或钚有可能被恐怖主义集团获取，用于制造小型简单的核弹。通过恐怖主义行为转移核材料的这种可能性是存在的。此外，人为错误和自然灾害构成的风险也很大。

17 Finally, there are unknown and unpredictable safety and environmental risks associated with nuclear energy production that may have long-term consequences.Use of nuclear energy also raises public health concerns with regard to uranium mining and reactor safety, as well as transport and disposal of nuclear waste.Some epidemiologists point out the statistically significant increase of cancer among workers in the nuclear fuel cycle and people living close to nuclear waste reprocessing plants.Some public health scholars suggest that nuclear power plants expose people to "low-level ionizing radiation, with increased health risks attendant to this exposure".Harvard and MIT scholars have stressed that modern reactor designs can achieve a very low risk of serious accidents but have admitted that, although technological progress has made nuclear reactors safer, they are not totally risk free, and the risk of a reactor leak or other kind of accident can never be dismissed completely.

最后，与核能生产相关的未知和不可预测的安全和环境风险可能会产生长期的后果。核能的使用也使公众关注铀矿开采，核反应堆安全以及核废料运输和处置等问题对公众健康的影响。流行病学家指出，核燃料圈的工作人员和生活在核废料回收处理厂附近的人患癌概率显著增加。一些公共卫生学者指出，核电站使人们暴露在“低水平电离辐射下， 这会增加健康风险”。哈佛大学和麻省理工学院的学者强调，现代反应堆的设计使严重事故的风险降到很低，但他们也承认，虽然技术进步使核反应堆更安全，但它们并非完全没有风险，反应堆泄漏或其他事故的风险永远不能完全消除。

18 Thus, nuclear technology is seen as " inherently hazardous" given its potential for large-scale damage to human health and the environment.Although nuclear risk per se has a low probability that is difficult to estimate, its foreseen damages are of an extreme magnitude in the event that it occurs.In other words, whereas the risk of a nuclear catastrophe is low, its impact on public health remains unknown.Risks posed by nuclear energy production are very difficult or even impossible to quantify.

因此，核技术因其可能对人类健康和环境造成大规模伤害而被视为“在根本上具有危险性”。虽然核风险本身的概率很低，难以估计， 然而一旦发生，其可预见的损害将是极其严重的。换句话说，虽然核灾难的风险很低，但它对公众健康的影响仍未可知。核能生产所带来的风险很难，甚至是无法量化。

19 Although since the Chernobyl accident 2 the nuclear power industry has strengthened its safety practices and standards, some risks are inherent in nuclear energy.The scope of nuclear risk is now broader than merely the risk of nuclear accident. (1,620 words)

尽管自切尔诺贝利核事故以来，核电行业加强了安全操作和标准，但核能源存在一些固有的风险。核风险的范围现已不仅限于核事故的风险。

词汇答案

Unit 7 （词汇答案）

二、【补】Vocabulary A(Passage A)(30分)

6.1. The aim of science is to ___theories and to replace them by better theories.(3分)

A. Falsify B. testify C. prove D. hypothesize

7.2. Half the people questioned said they were opposed to the military ___.(3分)

A. Interview **B. intervention** C. interrogation D. interest

8.3. The Constitution of the United States is a(n) ___document.(3分)

A. Fierce B. inflammable C. conservative **D. monumental**

9.4. The invention of the silicon chip was a ___in the history of the computer.(3分)

A. Sign B. stop **C. landmark** D. roadmap

10.5. The fact that your application was not successful this time does not ___the possibility of your applying again next time.(3分)

A. Conclude B. prelude C. include **D. preclude**

11.6. The certificate had clearly been ___, because it contained wrong information.(3分)

A. Cheated B. misled **C. falsified** D. flawed

12.7. How can a loving, ___God permit disease, war and suffering?(3分)

A. Opportunistic **B. omnipotent** C. oppressive D. observable

13.8. ___theory is the hypothesis that in radiation the energy of electrons is discharged not continuously but in certain fixed amounts.(3分)

A. Quantum B. Quotient C. Quantity D. Quality

14.9. For some ___reason, he’s decided to cancel the project.(3分)

A. Inexpensive B. interacting C. intact **D. inexplicable**

15.10. Despite his great commercial success he still ___for critical approval.(3分)

A. Yearns B. pulls C. accounts D. lives

Unit 8 （词汇答案）

二、【补】Vocabulary A(Passage A)(30分)

6.1. Limited access to the service is free for up to 64 sites; unlimited access is available for an annual _____fee.(3分)

A. Donation B. subsidy C. allowance **D. subscription**

7.2. Eurosceptic business and political groups said the figures proved that Britain could _____ without losing its currency.(3分)

A. Accomplish B. increase **C. thrive** D. achieve

8.3. Team effort supported by massive corporate resources _____lone artists in technological advances in the creative arts.(3分)

A. Wins B. surcharges **C. surpasses** D. succeeds

9.4. The _____among China's various nationalities is as firm as a rock.(3分)

A. Solidarity B. obligation C. responsibility D. society

10.5. The 20th-century economist Joseph Schumpeter _____that economies thrive when "creative destruction" occurs, meaning new entrants are able to replace established companies.(3分)

A. Advocated **B. theorized** C. created D. developed

11.6. "I think if you want to be an _____country, you have to give people security so they dare to take risks," said the Minister of Commerce and Industry.(3分)

A. Imaginary B. insightful C. original **D. innovative**

12.7. The theory is that an idea is _____in the subconscious, and it is affecting one's conscious behavior in some way.(3分)

A. Observed B. dwelt **C. embedded** D. pondered

13.8. Lying is one of the most human _____that really distinguishes us from the rest of the animal world.(3分)

A. Traits B. principles C. conventions D. customs

14.9. The film was so _____that I could scarcely take my eyes off the screen for a second.(3分)

A. Compelling B. agitating C. boring D. annoying

15.10. Scientists present their ideas to the general public, contributing directly or indirectly to debates in social, legal, and religious _____.(3分)

A. Districts **B. domains** C. lands D. majorities

Unit 13（词汇答案）

二、【补】Vocabulary A(Passage A)(30分)

6.1. Many foods are suspected of being _____to health because of the chemicals and additives they contain.(3分)

A. Defensive **B. detrimental** C. contradictory D. conducive

7.2. The government of the country has vehemently condemned the act of _____that targeted commercial and civilian vessels near the UAE's territorial waters.(3分)

A. Sabotage B. sacrifice C. significance D. satisfaction

8.3. The publicity _____by the court case has given a welcome boost to our sales.(3分)

A. Processed B. announced **C. generated** D. manufactured

9.4. Risk _____planning is the process of developing options and actions to enhance opportunities and reduce threats to project objectives(3分)

A. Manipulation B. avoidance **C. mitigation** D. deduction

10.5. The _____of light weapons and illicit arms trafficking in that country poses a major threat to peace, security and development in the continent.(3分)

A. Participation **B. proliferation** C. preparation D. persecution

11.6. The process engineering people collected statistical data on 17 parameters involved in the_____ of thin film circuits(3分)

A. Speculation B. clarification C. articulation **D. fabrication**

12.7. This article covers a survey devoted to the problem of studying and forecasting the diffusion of harmful _____in the atmosphere.(3分)

A. Superiority **B. substances** C. supply D. substitution

13.8. Current records indicate that collisions between whales and ships are a world-wide phenomenon which _____attention.(3分)

A. Warrants B. concentrates C. diverts D. enhances

14.9. A problem of this_____ cannot be solved by one person alone. The only way to solve it is through a community effort that identifies the problem precisely and leads to widely agreed solutions.(3分)

A. Territory B. altitude C. dimension **D. magnitude**

15.10. The Internal Security Operations Command (Isoc) will start inspecting factories on Friday under a plan to control toxic_____ , focusing on plants burning coal, fuel oil and wood.(3分)

A. Assertion B. interaction **C. emission** D. facility