TPO 25 – 1 The surface of Mars
火星的表面

The surface of Mars shows a wide range of geologic features, including huge volcanoes-the largest known in the solar system-and extensive impact cratering. Three very large volcanoes are found on the Tharsis bulge, an **enormous** geologic area near Mars`s equator. Northwest of Tharsis is the largest volcano of all: Olympus Mons, with a height of 25 kilometers and measuring some 700 kilometers in diameter at its base. The three large volcanoes on the Tharsis bulge are a little smaller-a "mere" 18 kilometers high.

问题 1：询问单词意思（**enormous**）；

问题 2：询问 Olympus Mons 在哪方面不同于其他火山；

火星表面展示了很多种地理特征，包括巨大的火山——太阳系中已知的最大火山——以及覆盖范围很广的陨石坑。在塔尔西斯隆起——火星赤道附近的广阔地质区域——发现了三座非常大的火山。位于塔尔西斯西北的奥林帕斯山是其中最大的一座火山：25 千米高，测得其基部直径大约有 700 千米。位于塔尔西斯隆起的三座大火山则略矮，高度“仅”达 18 千米。

None of these volcanoes was formed as a result of collisions between plates of the Martian crust-there is no plate motion on Mars. Instead, they are shield volcanoes - volcanoes with broad, sloping slides formed by molten rock. All four show **distinctive** lava channels and other flow features similar to those found on shield volcanoes on Earth. Images of the Martian surface reveal many hundreds of volcanoes. Most of the largest volcanoes are associated with the Tharsis bulge, but many smaller ones are found in the northern plains.

问题 3：询问单词意思（**distinctive**）；

问题 4：询问 NOT true 关于 Tharsis bulge shield volcanoes；

这些火山都不是因火星表面的板块碰撞而形成的——火星上并无板块运动。这些火山其实是盾状火山——一种由熔岩形成的斜面宽阔并且坡度平缓的火山。上述 4 座火山都具有非常明显的熔岩隧道以及其他流动特征，这与地球上的盾状火山相似。火星表面的图像显示那里存在成百上千的火山。那些最大的火山中的大部分都与塔尔西斯隆起有关，但是很多稍小的火山都分布在北部平原地区。

整段【多选题】

The great height of Martian volcanoes is a direct consequence of the planet`s low surface gravity. As lava flows and spreads to form a shield volcano, the volcano`s eventual height depends on the new mountain`s ability to support its own weight. The lower the gravity, the lesser the weight and the greater the height of the mountain. It is no accident that Maxwell Mons on Venus and the Hawaiian shield volcanoes on Earth rise to about the same height (about 10 kilometers) above their respective bases-Earth and Venus have similar surface gravity. Mars`s surface gravity is only 40 percent that of Earth, so volcanoes rise **roughly** 2.5 times as high. Are the Martian shield volcanoes still active? Scientists have no direct evidence for recent or ongoing eruptions, but if these volcanoes were active as recently as 100 million years ago (an estimate of the time of last eruption based on the extent of impact cratering on their slopes), some of them may still be at least intermittently active. Millions of years, though,

may pass between eruptions.
问题 5：询问单词意思（**roughly**）；
问题 6：询问作者为啥对比（Maxwell Mons on Venus）&（Hawaiian shield volcanoes on Earth）；
问题 7：等价替换语句（Sentences = which of the CHOICES）
火星上火山的可观的高度是该行星（相对）较低的地表重力导致的直接结果。当熔岩流淌和蔓延以形成盾状火山时，这座火山的最终高度取决于这座新生的山承载自身重量的能力。重力越低，重量就越小，山的高度就越高。如金星上的麦克斯韦山与地球上的夏威夷盾状火山从它们各自的基部算起海拔高度相同（大约 10 千米高）就不是什么巧合——地球与金星的地表重力相当。火星表面重力只有地球的 40%，因此火星上的火山高度大致是地球的 2.5 倍。火星上的盾状火山是否还处于活跃期？科学家们没有直接证据显示这些火山近期是否喷发过，或是否正处于喷发阶段，但是如果这些火山近期的活跃状态一如一千万年前那般（这一最近的爆发期是根据火山斜坡上陨石坑的范围估算出来的），它们当中的几个也许至少仍然会保持间歇性的活跃。然而，两次爆发之间也许间隔数百万年之久。

首句&尾句【多选题】
Another prominent feature of Mars`s surface is cratering. The Mariner spacecraft found that the surface of Mars, as well as that of its two moons, is pitted with impact craters formed by meteoroids falling in from space. As on our Moon, the smaller craters are often filled with surface matter-mostly dust-confirming that Mars is a dry desert world. However, Martian craters get filled in **considerably** faster than their lunar counterparts. On the Moon, ancient craters less than 100 meters across (corresponding to depths of about 20 meters) have been obliterated, primarily by meteoritic erosion. On Mars, there are relatively few craters less than 5 kilometers in diameter. The Martian atmosphere is an efficient erosive agent, with Martian winds transporting dust from place to place and erasing surface features much faster than meteoritic impacts alone can obliterate them.
问题 8：询问单词意思（**considerably**）；
问题 9：询问 craters 填充速度，moon 比 mars 快证明了什么；
问题 10：询问 mars 上 less than 5km 的 craters 很少说明了什么；
火星表面的另一个突出特征是陨石坑。水手计划中的宇宙飞船发现在火星表面布满来自太空的流星撞击表面形成的陨石坑，火星的两颗卫星也是如此。与我们的月球类似，那些较小的陨石坑经常被一些物质填满（主要是灰尘），这表明火星是一个干燥的沙漠世界。然而，与月球相比，火星上的陨石坑被填满的速度明显要快很多。在月球上，那些直径不足 100 米（对应深度大约在 20 米）的古老陨石坑主要因流星冲击而形成的尘埃的缘故而被填平了。而在火星上，只有相当少的一部分陨石坑直径小于 5 千米。火星大气是一种强效的腐蚀剂，加之火星上的风把灰尘从一个地方卷到另一个地方，较之仅仅是因流星冲击而形成的尘埃的作用，（火星上的）地表特征被消除得更快。

整段【多选题】
As on the Moon, the extent of large impact cratering (i.e. craters too big to have been filled in by erosion since they were formed) serves as an age indicator for the Martian surface. Age estimates ranging from four billion years for Mars`s southern highlands to a few hundred million years in the youngest volcanic areas were obtained in this way.

问题 11： 询问 scientists 可以 determined 什么 from the study of age；
与在我们的月球上相同，那些巨大陨石坑的范围（例如，那些巨大到自形成后尚未被尘埃填满的陨石坑）充当着火星表面年龄指示器的角色。从火星南部高地的 40 亿年至最年轻的火山地区的几千万年都是用同样的方法估算的。

整段&最后一部分【多选题】
The detailed appearance of Martian impact craters provides an important piece of information about conditions just below the planet`s surface. Martian craters are surrounded by ejecta (debris formed as a result of an impact) that looks quite different from its lunar counterparts. A comparison of the Copernicus crater on the Moon with the (fairly typical) crater Yuty on Mars demonstrates the differences. The ejecta surrounding the lunar crater is just what one would expect from an explosion ejecting a large volume of dust, soil, and boulders.【】 However, the ejecta on Mars gives the distinct impression of a liquid that has splashed or flowed out of crater. 【】Geologists think that this fluidized ejecta crater indicates that a layer of permafrost, or water ice, lies just a few meters under the surface.【】 Explosive impacts heated and liquefied the ice, resulting in the fluid appearance of the ejecta.【】
问题 12： 询问（Copernicus crater on the Moon）的不同之处，相比于（Yuty on Mars）；
问题 13： 插入语的位置➔【】;
火星表面陨石坑的具体外貌为揭示该行星表面状况提供了非常重要的信息。火星陨石坑周边布满了喷出物（因撞击而形成的碎片），这与月球上的陨石坑看起来非常不同。对比月球上的哥白尼陨石坑与火星上（相当典型的）尤蒂陨石坑可以看出不同。月球上陨石坑周边的喷出物正如我们以为的那样，一场爆炸喷出的大量的灰尘、土壤和岩石。然而，火星（上的陨石坑周边的）喷出物则因飞溅而出或溢出的液体给人留下了深刻的印象。地质学家认为这种具有流体化喷出物的陨石坑指示了在火星地表下几米处存在永冻土层或水冰。爆炸性的撞击加热并液化了这些冰，结果导致这些喷出物呈现流体状的特征。

TPO 25 – 2 The Decline of Venetian Shipping
威尼斯航运业的衰落

In the late thirteenth century, northern Italian cities such as Genoa, Florence, and Venice began an economic **resurgence** that made them into the most important economic centers of Europe. By the seventeenth century, however, other European powers had taken over, as the Italian cities lost much of their economic might.

问题 1：询问单词意思（**resurgence**）；comeback【看样子，TOEFL 的单词似乎只能硬背】

resurgence
英 [rɪˈsɜːdʒəns] 美 [rɪˈsɜːrdʒəns]
n. 复活；再现；再起

在 13 世纪后期，意大利北部城市，如热那亚、佛罗伦萨和威尼斯逐渐出现了经济复苏，这使得它们成为欧洲最重要的经济中心。 然而，到了 17 世纪，其他欧洲势力崛起，同时这些意大利城市失去了它们曾经的经济影响力。

首句&后半段【多选题】

This decline can be seen clearly in the changes that affected Venetian shipping and trade. First, Venice's intermediary functions in the Adriatic Sea, where it had dominated the business of shipping for other parties, were lost to direct trading. In the fifteenth century there was little problem recruiting sailors to row the galleys (large ships propelled by oars): guilds (business associations) were required to provide rowers, and through a draft system free citizens served **compulsorily** when called for.【】In the early sixteenth century the shortage of rowers was not serious because the demand for galleys was limited by a move to round ships (round-hulled ships with more cargo space), which required fewer rowers. 【】But the shortage of crews proved to be a greater and greater problem, despite continuous appeal to Venice's tradition of maritime greatness. 【】Even though sailors' wages doubled among the northern Italian cities from 1550 to 1590, this did not elicit an increased supply.【】

问题 2：询问单词意思（**compulsorily**）；
问题 3：询问 which 促进了 decline of the Venetian shipping;【关键词定位】
问题 4：询问 venice provided rowers for its galley as ways, mentioned 什么；【用选项关键词定位】
问题 14：插入语的位置➔【】;

这一衰退很明显地体现在影响威尼斯的航运以及贸易的变化上。 首先，威尼斯在亚得里亚海上的中介功能——它曾控制着亚得里亚海上其他团体的航运产业——败给了直接贸易。 在 15 世纪时期，为单层甲板大帆船（一种靠划桨驱动的大船）征募水手不算一个问题：行会（商业协会）负责提供桨手，当有需要的时候，会通过征用系统强制征召自由公民。 在 16 世纪早期，桨手的短缺问题还不算严重，由于圆船（一种使用圆形船体以提供更多货舱空间的船只）的出现，限制了单层甲板大帆船的需求，而圆船只需要很少的桨手。 然而，尽管一再诉诸于威尼斯那海事的伟大传统，但是船员的短缺日益被证明是一个严重的问题。 甚至当意大利北部城市水手的工资在 1550 年到 1590 年间翻倍时，水手的数量依然没有增长。

前半段【多选题】

The problem in shipping extended to the Arsenale, Venice's huge and powerful shipyard. Timber ran short, and it was necessary to procure it from farther and farther away. In ancient Roman times, the Italian peninsula had great forests of fir preferred for warships, but scarcity was apparent as early as the early fourteenth century. Arsenale officers first brought timber from the foothills of the Alps, then from north toward Trieste, and finally from across the Adriatic. Private shipbuilders were required to buy their oak abroad. As the costs of shipbuilding rose, Venice clung to its **outdated** standards while the Dutch were innovating in lighter and more easily handled ships.

航运的问题延伸到了阿森耐尔，威尼斯那庞大且颇具实力的造船厂。 木材开始短缺，必须从很远的地方运来。 在古罗马时期，意大利半岛上有茂密的冷杉林，冷杉是建造军舰的好材料，但是不足的现象早在 14 世纪早期就出现了。 阿森耐尔的长官最早从阿尔卑斯山脚下购买木材，而后则从北部到的里雅斯特地区（购买木材），最后则需跨过亚得里亚海（才能购得木材）。私人造船厂则不得不从国外购置橡木。 当造船的成本增加时，威尼斯依旧固守着它那过时了的标准，而与此同时，荷兰则转向更轻更易操作的新型船只方面的创新。

问题 5：询问单词意思（**outdated**）；

问题 6：询问为什么 cost of ships' building 越来越贵；

问题 7：询问促使 shipbuilding industry 的问题；

The step from buying foreign timber to buying foreign ships was regarded as a short one, especially when complaints were heard in the latter sixteenth century that the standards and traditions of the Arsenale were running down. Work was stretched out and done poorly. Older workers had been allowed to stop work a half hour before the regular time, and in 1601 younger workers left with them. Merchants complained that the privileges reserved for Venetian-built and -owned ships were first extended to those Venetians who bought ships from abroad and then to foreign-built and -owned vessels. Historian Frederic Lane observes that after the loss of ships in battle in the late sixteenth century, the shipbuilding industry no longer had the capacity to recover that it had displayed at the start of the century.

问题 8：询问促使 shipbuilding industry 的问题；

问题 9：等价替换语句（Sentences = which of the CHOICES）

从国外购买木材进而购买船只这一步很快就完成了，特别是在 16 世纪后期传出对威尼斯阿森耐尔不良的标准和传统的抱怨时。 工人消极怠工，成品质量低下。 老员工被允许在正常工时结束前半个小时就收工，到了 1601 年，年轻的员工也如此效仿。 商人们抱怨那些建造和拥有船只的威尼斯人所拥有的特权先是扩展到那些从国外购得船只的威尼斯人身上，而后又进一步扩展到建造并拥有船只的外国人身上。 历史学家弗雷德里克•莱恩观察到，自从 16 世纪后期在战场上损失了船只之后，造船业再也没有能力恢复到 16 世纪初那样了。

后半部分【多选题】

The **conventional** explanation for the loss of Venetian dominance in trade is the establishment of the Portuguese direct sea route to the East, replacing the overland Silk Road from the Black Sea and the highly profitable Indian Ocean-caravan-eastern Mediterranean route to Venice. The Portuguese Vasco da Gama's voyage around southern Africa to India took place at the end of the fifteenth century, and by 1502 the trans-Arabian caravan route

had been cut off by political unrest.

问题 10： 询问单词意思（**conventional**）；

问题 11： 询问作者为什么提 Vasco da Gama's voyage around southern Africa to India;

【支撑段落主旨，服从观点】

对威尼斯人失去贸易主导权的传统解释是，葡萄牙人建立的直接通往东方的海上航线替代了起自黑海的陆上丝绸之路以及通往威尼斯的高利润的印度洋—东地中海陆上商路。 在 15 世纪末期，葡萄牙的瓦斯科•达•伽马实现了环绕南非到达印度的航行；而在 1502 年，通往阿拉伯国家的商路因政治动荡被切断。

整段【多选题】

The Venetian Council finally allowed round ships to enter the trade that was previously reserved for merchant galleys, thus reducing transport costs by one third. Prices of spices delivered by ship from the eastern Mediterranean came to equal those of spices transported by Portuguese vessels, but the increase in quantity with both routes in operation drove the price far down. Gradually, Venice's role as a storage and distribution center for spices and silk, dyes, cotton, and gold decayed, and by the early seventeenth century Venice had lost its monopoly in markets such as France and southern Germany. Venetian shipping had started to decline from about 1530-before the entry into the Mediterranean of large volumes of Dutch and British shipping-and was clearly outclassed by the end of the century. A contemporary of Shakespeare (1564–1616) observed that the productivity of Italian shipping had declined, compared with that of the British, because of conservatism and loss of expertise. Moreover, Italian sailors were deserting and emigrating, and captains, no longer recruited from the ranks of nobles, were weak on navigation.

问题 12： 询问关于 Venetian Council finally allowed round ships 这个决定的 inference;

问题 13： 询问 spices' price far down 的原因；

威尼斯委员会最终允许在贸易中使用圆船，之前只允许使用单层甲板大帆船，因此运输的成本下降了 1/3。 从地中海东部船运过来的香料价格与葡萄牙航线船运的香料价格相当，但是两条运营的商线使得香料的总供应量增加，从而导致香料的价格大幅度下降。 逐渐地，威尼斯作为香料、丝绸、染料棉和黄金的储存与配销中心的作用衰退了，到 17 世纪早期，威尼斯彻底失去了它在诸如法国和德国南部市场上的垄断地位。 威尼斯航运业的衰退是从大约 1530 年开始的——在大量荷兰和英国船只进入地中海之前——并且在 16 世纪末期明显被超越了。莎士比亚时代（1564～1616）的一位同代人评论说，相比较英国，意大利航运业生产力已经在下降了，这是因为意大利的航运业过于守旧并且缺乏专业技术所致。此外，意大利船员逐渐逃离并移居到他乡，而意大利船长不再是从贵族阶级中征召而来，在航海方面也暴露出各种不足。

TPO 25 – 3 The Evolutionary Origin of Plants
植物的进化起源

The evolutionary history of plants has been marked by a series of adaptations. The ancestors of plants were photosynthetic single-celled organisms probably similar to today's algae. Like modern algae, the organisms that gave rise to plants **presumably** lacked true roots, stems, leaves, and complex reproductive structures such as flowers. All of these features appeared later in the evolutionary history of plants. Of today's different groups of algae, green algae are probably the most similar to ancestral plants. This supposition stems from the close phylogenetic (natural evolutionary) relationship between the two groups. DNA comparisons have shown that green algae are plants' closest living relatives. In addition, other lines of evidence support the hypothesis that land plants evolved from ancestral green algae: green algae used the same type of chlorophyll and accessory pigments in photosynthesis as do land plants. This would not be true of red or brown algae. Green algae store food as starch, as do land plants and have cell walls made of cellulose, similar in composition to those of land plants. Again, the food storage and cell wall molecules of red and brown algae are different.

问题 1：询问单词意思（**presumably**）；
问题 2：询问关于 ancestors of plants 的陈述 true 是哪个；**【Except 题】**

presumably	**supposedly**
英 [prɪˈzjuːməbli] 美 [prɪˈzuːməbli]	英 [səˈpəʊzɪdli] 美 [səˈpoʊzɪdli]
adv. 大概；推测起来；可假定	adv. 可能；按照推测；恐怕

植物的进化史是以一系列对周遭环境的适应为标记的。 植物的“祖先”是能够进行光合作用的单细胞生物，或许和今天的藻类相似。 就像今天的藻类，进化出植物的组织可能缺少真正的根、茎、叶以及复杂生殖结构——例如花朵。 上述提到的这些特征出现于植物进化史的后期。 在今天的众多藻类中，绿藻可能与植物的祖先最为相似。 这个假说根植于两种物种很近的系统发育（自然进化论）的关系。 通过对比两者的 DNA，得知绿藻是目前还存活的与植物亲缘关系最近的“近亲”。 此外，其他一系列证据支持了这种假说，即陆生植物由原始绿藻进化而成，两者在进行光合作用时使用了相同类型的叶绿素和辅助色素。 而红藻和褐藻则并非如此。 绿藻以淀粉的形式贮藏能量，这与陆生植物相同；绿藻具有由纤维素构成的细胞壁，这与那些陆生植物的组织结构相同。 同样的，红藻和褐藻在能量贮藏形式和细胞壁分子构成方面与之不同。

Today green algae live mainly in freshwater, suggesting that their early evolutionary history may have occurred in freshwater habitats. If so, the green algae would have been **subjected to** environmental pressures that resulted in adaptations that enhanced their potential to give rise to land-dwelling organisms.

问题 3：询问单词意思（**subjected to**）；

subject to	**exposed to**
英 美 [ˈsʌbdʒɪkt tu]	英 美
使服从；使遭受；受…管制	接触；暴露于

如今的绿藻大多生活在淡水水域中，这一点说明它们的早期进化史起源于淡水生境。 如果事

实如此的话，绿藻可能曾经受到环境的压力，产生了适应机制，提高了进化出陆生植物或其他有机体的可能性。

整段【多选题】

【】The environmental conditions of freshwater habitats, unlike those of ocean habitats, are highly variable. 【】Water temperature can fluctuate seasonally or even daily, and changing levels of rainfall can lead to fluctuations in the concentration of chemicals in the water or even to periods in which the aquatic habitat dries up.【】 Ancient freshwater green algae must have evolved features that enabled them to withstand extremes of temperature and periods of dryness. 【】These adaptations served their descendants well as they invaded land.

问题 4： 询问 inference from Ancient freshwater green algae；

问题 13： 插入语的位置➔【】;

与海洋生境不同的是，淡水生境的环境条件非常多样。 水温会随季节变化，甚至在一天当中也不尽相同；降雨情况的变化也会导致水中所含的化学元素的变化，或因水域生境干涸而出现周期性变化。 古老的淡水绿藻必须进化出一些特征以保证它们能够对抗极端温度和干旱。 这些适应机制在它们的后代进化成陆生生物时起了很好的协助作用。

The terrestrial world is green now, but it did not start out that way. When plants first made the transition ashore more than 400 million years ago, the land was barren and **desolate**, inhospitable to life. From a plant's evolutionary viewpoint, however, it was also a land of opportunity, free of competitors and predators and full of carbon dioxide and sunlight (the raw materials for photosynthesis, which are present in far higher concentrations in air than in water). So once natural selection had shaped the adaptations that helped plants overcome the obstacles to terrestrial living, plants prospered and diversified.

问题 5： 询问单词意思（**desolate**）;

问题 6： 等价替换语句（Sentences = which of the CHOICES）

问题 7： 询问 which is true about terristrial word at the time colonized by plants;

陆地世界现在充满绿色，但开始时并非如此。 当植物在 4 千万年前第一次向岸上过渡时，陆地是贫瘠且荒芜的，并不适合生物生存。 然而，从植物进化的角度来看，这同时是一片充满机会的土地，没有竞争者和捕食者，并且具有充足的二氧化碳和阳光（这些是光合作用的原材料，它们在空气中的含量要远远高于在水中的含量）。 所以，一旦自然选择塑造了植物的适应机制，使之克服在陆地生活的障碍，植物物种就生机勃勃且丰富多样了。

整段【多选题】

When plants pioneered the land, they faced a range of challenges **posed** by terrestrial environments. On land, the supportive buoyancy of water is missing, the plant is no longer bathed in a nutrient solution, and the air tends to dry things out. These conditions favored the evolution of structures that support the body, vessels that transport water and nutrients to all parts of the plant, and structures that conserve water. The resulting adaptations to dry land include some structural features that arose early in plant evolution; now these features are common to virtually all land plants. They include roots or rootlike structures, a waxy cuticle that covers the surfaces of leaves and stems and limits the evaporation of water, and pores

called stomata in leaves and stems that allow gas exchange but close when water is scarce, thus reducing water loss. Other adaptations occurred later in the transition to terrestrial life and are now widespread but not universal among plants. These include conducting vessels that transport water and minerals upward from the roots and that move photosynthetic products from the leaves to the rest of the plant body and the stiffening substance lignin, which supports the plant body, helping it expose maximum surface area to sunlight.

问题 8： 询问单词意思（**posed**）；

问题 9： 询问 early challenges that terrestrial plants should overcome 有哪些；**【Except】**

选项信息可能藏在整段里，但是选项信息应该都会在文中出现的。（可能跨度比较远而已）

问题 10： 询问上述大段的讨论在 terrestrial plants 的 origins 中起什么作用；

当植物开拓陆地的时候，它们要面对一系列陆地环境带来的挑战。 在陆地上，水中支撑植物的浮力消失，植物不能再漂浮在营养液里，空气会风干水分。 这些条件有助于进化出那些用于支撑枝干的结构、运输水分和养分到植物各部分的导管以及储存水分的结构。 对干旱陆地的适应结果包括一些在早期植物进化中所体现出的结构特征；现在，这些特征几乎在所有的陆生植物上都有所体现。 其中包括根或者类似根的结构、覆盖茎叶表面能阻止水分蒸发的蜡质角质层以及茎叶上被称为气孔的小孔——气孔的存在可以保证气体的交换，并在水分缺失时关闭气孔从而防止水分的进一步流失。 其他的适应机制在向陆地过渡过程中出现得较晚，现在体现在很多植物上，但并不是所有的植物。 其中包括从根部向上运输水分和矿物质的导管，从叶片向植物其他部分输送光合作用产物的筛管以及用来支撑植物体、使得它以最大表面积接触阳光的硬化木质。

前半部分&首句【多选题】

These adaptations allowed an increasing diversity of plant forms to exploit dry land. Life on land, however, also required new methods of transporting sperm to eggs. Unlike aquatic and marine forms, land plants cannot always rely on water currents to carry their sex cells and disperse their fertilized eggs. So the most successful groups of land plants are those that evolved methods of fertilized sex cell dispersal that are independent of water and structures that protect developing embryos from drying out. Protected embryos and waterless dispersal of sex cells were achieved with the origin of seed plants and the key evolutionary innovations that they introduced: pollen, seeds, and, later, flowers and fruits.

问题 11： 询问 terrestrial plants 所做出来的 adaptations 有什么影响；【根据**关键词**定位】

问题 12： 询问 best description 关于作者对 land plants 信息的陈述；

这些适应机制保证了不断增加的植物形态的多样性，以便于它们去开拓干旱的陆地。 然而，陆地上的生物也需要新的方法来受精。 与水中和海洋中的形式不同，陆生植物无法总是依赖水流来携带生殖细胞或传播受精卵。 因此，陆生植物中最成功的那几组植物都进化出了不依靠水也可以传播受精生殖细胞的方式和防止发育中的胚胎变干的结构。进化到种子植物时，保护胚胎以及在无水环境下传播生殖细胞的方式才得以实现，它们带来的关键进化创新是：花粉、种子以及后来的花朵和果实。