TPO 29 – 1 Characteristics of Roman Pottery
罗马陶器的特点

整段【多选题】

The pottery of ancient Romans is remarkable in several ways. The high quality of Roman pottery is very easy to appreciate when handling actual pieces of tableware or indeed kitchenware and amphorae (the large jars used throughout the Mediterranean for the transport and storage of liquids, such as wine and oil). However, it is impossible to do justice to Roman wares on the page, even when words can be backed up by photographs and drawings. Most Roman pottery is light and smooth to the touch and very tough, although, like all pottery, it shatters if dropped on a hard surface. It is generally made with carefully selected and purified clay, worked to thin-walled and standardized shapes on a fast wheel and fired in a kiln (pottery oven) capable of ensuring a consistent finish. With handmade pottery, inevitably there are slight differences between individual vessels of the same design and occasional minor blemishes (flaws). But what strikes the eye and the touch most immediately and most powerfully with Roman pottery is its consistent high quality.

问题 1： 询问关于 Roman pottery 的表述；

问题 2： 询问 Roman pottery 的特点；【Except】

古罗马的陶器在诸多方面成就惊人。 当把玩古罗马陶制餐具或厨房用具和双耳陶罐（遍及整个地中海地区用以运输或储存酒或油之类液体的大型陶罐）时，人们对其良好的质量赞不绝口。尽管有照片和画像的记录，却无法轻易的对罗马陶器做出公正评价。 绝大部分罗马陶器都很轻很光滑也很坚韧，尽管，像所有陶器一样，当撞到坚硬地面时也容易破碎。 它们一般由精心筛选和净化后的粘土在快速旋转的圆盘上制成壁薄而形状标准的坯子，然后放入陶器窑中烧结，并确保一气呵成。 由于是手工制作，同一型号的陶器难免有微小差别和瑕疵。 但罗马陶器让人瞠目结舌的最直接最有力的是它那一以贯之的高质量。

整段【多选题】

This is not just an aesthetic consideration but also a practical one. These vessels are solid (brittle, but not fragile), they are pleasant and easy to handle (being light and smooth), and, with their hard and sometimes glossy (smooth and shiny) surfaces, they hold liquids well and are easy to wash. Furthermore, their regular and standardized shapes would have made them simple to stack and store. When people today are shown a very ordinary Roman pot and, in particular, are allowed to handle it, they often comment on how modern it looks and feels, and they need to be convinced of its true age.

问题 3： 询问 Roman vessels 的陈述；

这不仅是审美的考虑也有实用之处。 这些容器都很坚硬（脆却并不易碎），很优雅也很好用（质轻而光滑），其表面坚硬而有时带有光泽。它们很适合盛放液体也很易清洁。而且，它们形状规则且标准，极易堆放储藏。 当将这些陶器展示给今天的人们，并允许他们把玩时，他们常常认为其形状和手感如此现代以至于很难相信其实际年龄。

As impressive as the quality of Roman pottery is its sheer massive quantity. When considering quantities, we would ideally like to have some estimates for overall production

from particular sites of pottery manufacture and for overall consumption at specific settlements. Unfortunately, it is in the nature of the archaeological evidence, which is almost invariably only a sample of what once existed, that such figures will always be elusive. However, no one who has ever worked in the field would question the abundance of Roman pottery, particularly in the Mediterranean region. This abundance is notable in Roman settlements (especially urban sites) where the labor that archaeologists have to put into the washing and sorting of potsherds (fragments of pottery) constitutes a high proportion of the total work during the initial phases of excavation.

问题 4： 询问作者提及 archaeologists 的工作的目的；

和其高质量一样让人印象深刻的是罗马陶器的巨大的数量。 当确定数量时，我们常喜欢去评估某一陶器生产地点生产陶器的总量以及某地居民对陶器的消费总量。 不幸的是，考古证据本质上只能是历史存在的一个样本，因而由此得到的数据并不可靠。 但是，那些曾经在现场工作过的人绝不会怀疑罗马陶器的数量，尤其是在地中海地区。 陶器数量的罗马人聚集区（尤其是城市遗址）家喻户晓。在那些遗址上考古学家们在挖掘的第一阶段不得不花费很大比例的劳动力去清洗和整理陶器碎片。

整段【多选题】

【】Only rarely can we derive any "real" quantities from deposits of broken pots. 【】However, there is one **exceptional** dump, which does represent a very large part of the site`s total history of consumption and for which an estimate of quantity has been produced. 【】On the left bank of the Tiber River in Rome, by one of the river ports of the ancient city, is a **substantial** hill some 50 meters high called Monte Testaccio. 【】It is made up **entirely** of broken oil amphorae, mainly of the second and third centuries A.D. It has been estimated that Monte Testaccio contains the remains of some 53 million amphorae, in which around 6,000 million liters of oil were imported into the city from overseas. Imports into imperial Rome were supported by the full might of the state and were therefore quite exceptional-but the size of the operations at Monte Testaccio, and the productivity and complexity that lay behind them, nonetheless cannot fail to impress. This was a society with similarities to modern ones-moving goods on a gigantic scale, manufacturing high-quality containers to do so, and *occasionally*, as here, even *discarding them on delivery*.

问题 5： 询问单词意思（**substantial**）；

问题 6： 询问 Monte Testaccio 是很重要的对于 archaeologists 的原因；

问题 7： 询问单词意思（**entirely**）；

问题 8： 询问 ports 表明了什么；

问题 9： 询问关于 *occasionally* *discarding* 的 statement 支持哪一个陈述；

问题 13： 插入语的位置➔【】；

从陶罐碎片堆中我们很难推算出真正的数量。 但也有例外。有一处遗址出土的陶器代表了其曾经的陶器消费的很大一部分，因此可以据此推测出其数量。 罗马第伯尔河左岸上一座古代城市码头的旁边有一座约 50 米高的小山，叫做 Monte Testaccio. 该山全部由公元二到三世纪的油罐碎片组成。 据估计，Monte Testaccio 山上约有 5300 万只油罐并由此从海外进口了约 60 亿升的油。 向罗马帝国的进口由国家全力支持，因此也非常例外----但是 Monte Testaccio 的制作规模及其背后的生产力和复杂性却绝对不容忽视。 这是一个与现代人有相似之处的社

会，他们大规模地搬运货物，制造高质量的集装箱，有时甚至在交货时丢弃这些货物。

整段【多选题】

Roman pottery was transported not only in large quantities but also over substantial distances. Many Roman pots, in **particular** amphorae and the fine wares designed for use at tables, could travel hundreds of miles-all over the Mediterranean and also further afield. But maps that show the various spots where Roman pottery of a particular type has been found tell only part of the story. What is more significant than any geographical spread is the access that different levels of society had to good-quality products. In all but the remotest regions of the empire, Roman pottery of a high standard is common at the sites of **humble** villages and isolated farmsteads.

问题 10：询问（maps that show the）makes the point that?

转折关系前后是两个观点【But】，所以，为了进一步理解意思，需要继续读下去。

问题 11：询问单词意思（**humble**）；

问题 12：询问单词意思（**particular**）；

罗马陶器不仅运输数量庞大而且其运输距离遥远。 很多罗马陶罐，尤其是双耳陶罐和桌上餐具可能被运输了几百英里----遍及整个地中海乃至更远。 但是显示各种罗马陶器出土地点的地图只是故事的一部分。 比地理上的广阔分布更重要的是社会的不同阶层都能够使用这种高质量的陶罐。 在帝国的几乎所有的偏远地区，高质量的罗马陶器在古老偏远的村庄田野中都随处可见。

TPO 29 – 2 Competition
竞争

When several individuals of the same species or of several different species depend on the same limited resource, a situation may arise that is referred to as competition. The existence of competition has been long known to naturalists; its effects were described by Darwin in considerable detail. Competition among individuals of the same species (intraspecies competition), one of the major **mechanisms of natural selection**, is the concern of evolutionary biology. Competition among the individuals of different species (interspecies competition) is a major concern of ecology. It is one of the factors controlling the size of competing populations, and in extreme cases it may lead to the extinction of one of the competing species. This was described by Darwin for **indigenous** New Zealand species of animals and plants, which died out when competing species from Europe were introduced.

问题 1： 询问单词意思（**mechanisms of natural selection**）；
问题 2： 询问 competition among individuals of different species；
问题 3： 询问单词意思（**indigenous**）；
问题 4： 询问作者为什么提（New Zealand species）；

当同一物种的不同个体或不同的物种都依靠同一有限资源时，这种情况往往会引发成所谓的竞争。 竞争的存在已为自然学家们所熟知，其结果也已被达尔文详尽叙述过。 同一物种不同个体之间的竞争（种内竞争），作为自然选择的一个主要原理，现在属于进化生物学。 不同物种个体之间的竞争（种间竞争）是生态学的主要部分。 它是控制有竞争关系的种群数量的一个因素，而其极端情况可能导致竞争的一方灭绝。 达尔文在描述新西兰本土动植物物种时讲到该情况，本地物种在与引进的欧洲物种的竞争中灭绝了。

第 2 句&第 3 句【多选题】

No serious competition exists when the major needed resource is in superabundant supply, as in most cases of the coexistence of herbivores (plant eaters). Furthermore, most species do not depend entirely on a single resource. If the major resource for a species becomes scarce, the species can usually shift to alternative resources. If more than one species is competing for a scarce resource, the competing species usually switch to different alternative resources. Competition is usually most severe among close relatives with similar demands on the environment. But it may also occur among totally unrelated forms that compete for the same resource, such as seed-eating rodents and ants. The effects of such competition are **graphically** demonstrated when all the animals or all the plants in an ecosystem come into competition, as happened 2 million years ago at the end of the Pliocene, when North and South America became joined by the Isthmus of Panama. North and South American species migrating across the Isthmus now came into competition with each other. The result was the extermination of a large fraction of the South American mammals, which were apparently unable to withstand the competition from invading North American species-although added predation was also an important factor.

问题 5： 询问（competition among coexistence）不是重要的因素在什么时候；
问题 6： 询问单词意思（**graphically**）；

问题 7：询问作者谈论发生了（North and South America…）的原因；
当主要需求的资源能充分供给时，竞争就不会很激烈，正如很多情况下植食动物都能够共存。而且绝大部分物种并不只依靠一种资源。 如果多个物种竞争同一稀缺资源，他们常会转向不同的候选资源。 如果有超过一个物种争夺稀缺资源，竞争物种通常会转向不同的替代资源。近亲之间的竞争往往最激烈，因为他们对环境有相似需求。 但激烈竞争也可能发生在毫不相关却需要同一资源的物种之间，例如吃种子的啮齿动物和蚂蚁。 当一个生态系统中的所有动植物都参与到竞争中来时竞争的影响将表现得淋漓尽致，比如在两百万年前上新世末期当南、北美洲在巴拿马地峡处聚拢时所发生的一切。 南、北美洲的物种可以穿越地峡而相互竞争。结果是大量南美洲哺乳动物因抵抗不了来自北美洲物种的竞争而灭绝----尽管增加的捕杀也是一个很重要的因素。

高亮句【多选题】
To what extent competition determines the composition of a community and the density of particular species has been the source of considerable controversy. The problem is that competition ordinarily cannot be observed directly but must be inferred from the spread or increase of one species and the concurrent reduction or disappearance of another species. The Russian biologist G.F. Gause performed numerous two-species experiments in the laboratory, in which one of the species became extinct when only a single kind of resource was available. On the basis of these experiments and of field observations, the so-called law of competitive exclusion was formulated, according to which no two species can occupy the same niche. Numerous seeming exceptions to this law have since been found, but they can usually be explained as cases in which the two species, even though competing for a major joint resource, did not really occupy exactly the same niche.
问题 8：询问 why 他的 experiments 是重要的；
问题 9：等价替换语句（Sentences = which of the CHOICES）
竞争在多大程度上决定群落的组成和某特定物种的密度一直备受争议。 问题是竞争通常无法直接观察得到而必须通过某一物种的扩张或增加而另外一种物种同时减少或消失的对比中推测出来。 俄罗斯生物学家 G. F. Gause 进行了大量的两物种的室内实验，结果表明当只提供一种资源时其中一个物种将会灭绝。 基于以上实验和实地观察，所谓的竞争灭绝法则是成立的，因为两个物种不可能同时完全占有同一有限资源。 不过也发现了很多例外，但这些情况下两个物种，尽管会争夺某一主要资源，但它们争夺的资源不完全相同。

第 2 句【多选题】
Competition among species is of considerable evolutionary importance. The physical structure of species competing for resources in the same ecological niche tends to gradually evolve in ways that allow them to occupy different niches. Competing species also tend to change their ranges so that their territories no longer overlap. The evolutionary effect of competition on species has been referred to as "species selection;" however, this description is potentially misleading. Only the individuals of a species are subject to the pressures of natural selection. The effect on the well-being and existence of a species is just the result of the effects of selection on all the individuals of the species. Thus species selection is actually a result of individual selection. Competition may occur for any needed resource. 【】In the

case of animals it is usually food; in the case of forest plants it may be light; in the case of substrate inhabitants it may be space, as in many shallow-water bottom-dwelling marine organisms. 【】Indeed, it may be for any of the factors, physical as well as biotic, that are essential for organisms.【】Competition is usually the more severe the denser the population. 【】 Together with predation, it is the most important density-dependent factor in **regulating** population growth.

问题 10：询问 competition 怎样 evolution；

问题 11：询问（this description is potentially misleading）的原因；

问题 12：询问单词意思（**regulating**）；

问题 13：插入语的位置➔【】;

物种间的竞争对进化至关重要。 争夺同一生态资源的物种趋向于朝着依赖不同资源的方向进化。 相互竞争的物种会逐渐改变他们的活动范围使其领地不再重叠。 竞争对进化的影响称为"物种选择”，但这一描述有很大误导性。 只有某一物种中的个体才能面临自然选择的压力。 某一物种的繁盛或生存正是其所有个体经历自然选择的结果。 因此物种选择实际上是个体选择的结果。 任何必须的资源都可能引发竞争。 这种资源对动物而言常是食物，对森林植物而言可能是阳光，对地面物种来说可能是空间，比如很多生活在浅海海床上生物。 实际上，竞争对象可能是生物所必需的任何生物的或非生物的因素。 通常生物密度越大，竞争越激烈。 和捕杀一起，竞争是与生物密度相关的调控生物密度增长的重要因素。

TPO 29 – 3 The History of Waterpower
水力发电的历史

整段【多选题】

Moving water was one of the earliest energy sources to be **harnessed** to reduce the workload of people and animals. No one knows exactly when the waterwheel was invented, but irrigation systems existed at least 5,000 years ago, and it seems probable that the earliest waterpower device was the noria, a waterwheel that raised water for irrigation in attached jars. This device appears to have evolved no later than the fifth century B.C., perhaps independently in different regions of the Middle and Far East.

问题 1：询问单词意思（**harnessed**）；

问题 2：询问早期的水力发展的陈述，不确定的是哪个；【Except】

流水是人类最早利用的能量来源，以减少人和牲畜的工作负担。 无法知晓水轮是什么时候发明的，但灌溉系统至少在五千年前就已存在。最早的水力设施很可能是戽水车，一种通过附带的瓦罐将水举起以便灌溉的水轮。 这种设备在公元前十五世纪就可能独立的出现在中东和远东的一些地区了。

整段【多选题】

The earliest waterpower mills were probably vertical-axis mills for grinding corn, known as Norse or Greek mills, which seem to have appeared during the first or second century B.C. in the Middle East and a few centuries later in Scandinavia. In the following centuries, increasingly sophisticated waterpower mills were built throughout the Roman Empire and beyond its boundaries in the Middle East and northern Europe. In England, the Saxons are thought to have used both horizontal- and vertical-axis wheels. The first documented English mill was in the eighth century, but three centuries later about 5,000 were recorded, suggesting that every settlement of any size had its mill.

问题 3：询问关于（waterpower mills were）的正确陈述；

最早用于研磨谷物的水力磨可能都是垂直轴的，比如希腊磨或挪威磨，它们可能在公元前一到二世纪出现在中东地区，几个世纪之后出现在斯堪的纳维亚。 后来的几个世纪里，更加先进的水磨在整个罗马帝国及其边界以外的中东和北欧各地兴建起来。 在英国，撒克逊人可能既有水平轴的也有垂直轴的水磨。 有记录的最早的英国磨出现在八世纪，但三百年后大约有 5000 口水磨记录再案，也就是说几乎每一处居民聚集地，无论规模大小如何都有自己的水磨。

Raising water and grinding corn were by no means the only uses of the waterpower mill, and during the following centuries, **the applications of waterpower** kept pace with the developing technologies of mining, iron working, paper making, and the wool and cotton industries. Water was the main source of mechanical power, and by the end of the seventeenth century, England alone is thought to have had some 20,000 working mills. There was much debate on the relative efficiencies of different types of waterwheels. 【】The period from about 1650 until 1800 saw some excellent scientific and technical investigations of different designs. 【】They revealed output powers ranging from about 1 horsepower to perhaps 60 for the largest wheels and confirmed that for maximum efficiency, the water

should pass across the blades as smoothly as possible and fall away with minimum speed, having given up almost all of its kinetic energy. 【】(They also proved that, in principle, the overshot wheel, a type of wheel in which an overhead stream of water powers the wheel, should win the efficiency competition.)【】

问题 4：询问单词意思（**the applications of waterpower**）；

问题 5：询问 discovered 哪个（The period from about 1650 until 1800）；

问题 13：插入语的位置➔【】；

举升水和研磨谷物绝不是水力磨的唯一用途，在后来几个世纪中，对水力的利用与采矿、炼铁、造纸以及棉毛纺织工业的技术进步同步。 水力是机械能的主要来源，在十七世纪末，光英国就有约两万座水磨。不类型水轮的效率的高低向来争议很多。 从 1650 到 1800 年间，人们设计了一些在科学和技术上都很先进的水轮。 它们的输出功率从 1 马力到最大的 60 马力，并且人们确信要想产生最高效率，水应该从叶轮上尽可能光滑的流过，并以最小的速度落下，以便输出其几乎所有动能。 （已经证明从原则上，上射水轮，一种利用从顶部倾泻的水流驱动叶轮的水轮，的效率最高。）

整段【多选题】

But then steam power entered the scene, putting the whole future of waterpower in doubt. An energy analyst writing in the year 1800 would have painted a very **pessimistic** picture of the future for waterpower. The coal-fired steam engine was taking over, and the waterwheel was fast becoming obsolete. However, like many later experts, this one would have suffered from an inability to see into the future. A century later the picture was completely different: **by then**, the world had an electric industry, and a quarter of its generating capacity was water powered.

问题 6：询问单词意思（**pessimistic**）；

问题 7：询问短语指代意思（**by then**）；

问题 8：询问为什么 water power 变得更重要了 by 1900；

但随后蒸汽动力进入舞台，让整个水动力的前景蒙上阴影。 一位 1800 年的能量分析家可能会对水动力的前景持非常悲观的态度。 燃煤的蒸汽发动机正在普及，水轮迅速过时。 然而，就像很多后来的专家一样，这位分析师也没有能力看透未来。 一个世纪后，情况完全改变：这时，世界有了电力工业，它有四分之一发电量是水力驱动的。

The growth of the electric-power industry was the result of a remarkable series of scientific discoveries and developments in electrotechnology during the nineteenth century, but significant changes in what we might now call hydro (water) technology also played their part. In 1832, the year of Michael Faraday's discovery that a changing magnetic field produces an electric field, a young French engineer patented a new and more efficient waterwheel. His name was Benoît Fourneyron, and his device was the first successful water turbine. (The word turbine comes from the Latin turbo: something that spins). The waterwheel, **unaltered** for nearly 2,000 years, had finally been superseded.

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

问题 10：询问单词意思（**unaltered**）；

问题 11：询问电力生产的历史，支持哪一个描述；

十九世纪电力工业的崛起源自一系列的科学发现和电工业的发展，但我们现在目睹的水力技术

的重大进步也发挥了重要作用。 在 1832 年，当 Michael Faraday 发现了变化的磁场能够产生电场理论时，一位年轻的法国工程师申请了一种新型的更有效率的水轮专利。 他的名字叫 Nenoit Fourneyron，而他的设备是最早的成功的水力涡轮。 （涡轮的名字来自拉丁词 turbo: 会旋转的东西）。 水轮在保持了近 2000 年的原始模样后终于被超越了。

整段【多选题】

Half a century of development was needed before Faraday's discoveries in electricity were translated into full-scale power stations. In 1881 the Godalming power station in Surrey, England, on the banks of the Wey River, created the world's first public electricity supply. The power source of this most modern technology was a traditional waterwheel. Unfortunately this early plant experienced the problem common to many forms of renewable energy: the flow in the Wey River was unreliable, and the waterwheel was soon replaced by a steam engine.

问题 12：询问 experienced the problem 当 power station in providing electricity；

在半个世纪里的时间里，法拉第的电学理论终于发展成了设施齐备的发电厂。 1881 年在英国的萨里，在卫河河畔建成了世界上第一座公用水力发电站----Godalming 发电站。 这种现代化的发电站所用的仍是传统的水轮。 不幸的是，这座早起的水力发电站也遭受了所有可再生能源的共同弊端：卫河的水流极不稳定，而水轮很快被蒸汽机代替了。

整段【多选题】

From this primitive start, the electric industry grew during the final 20 years of the nineteenth century at a rate **seldom if ever** exceeded by any technology. The capacity of individual power stations, many of them hydro plants, rose from a few kilowatts to over a megawatt in less than a decade.

从这次原始的尝试开始，电工业在十九世纪最后的二十年中以比任何其它技术都快得多的速度发展起来。 单个发电站，很多都是水力发电站，的发电能力从几千瓦在不到十年时间内就发展到了几兆瓦。