TPO35 Reading Keys

Passage 3

**The surface of Mars**

Paragraph 1

→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.

Q29 The word “enormous” in the passage is closest in meaning to

1. Important
2. Extremely large
3. Highly unusual
4. Active

正确答案: B

解析：回到原文题干定位词汇出现的句子，“Three very large volcanoes are found on the Tharsis bulge, an enormous geologic area near Mars’s equator.” 从句型结构来看，这句话的是修饰Tharsis bulge的同位语短语。根据主句的主语three very large volcanoes来推断，Tharsis bulge很大，所以推断选B选项。 enormous =very large in size or quantity = extremely large，巨大的。extremely large, 特别巨大的；highly unusual, 高度罕见的；active， 活跃的。希望考生考试之前尽量掌握这些词汇。

Q30 According to paragraph 1, Olympus Mons differs from volcanoes on the Tharsis bulge in that Olympus Mons

1. Has more complex geologic features
2. Shows less impact cratering
3. Is taller
4. Was formed at a later time

Paragraph 1 is marked with an arrow [→].

正确答案: C

解析：题目问的就是OM(Olympus Mon) 这个东西和Tb (Tharsis bulge)上的火山区别在哪儿。定位原文第三四句话：“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.” 很容易看出二者高度是不同的，25 km> 18km，所以选C。

Paragraph 2

→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.

Q31 The word “distinctive” in the passage is closest in meaning to

1. Deep
2. Complex
3. Characteristic
4. Ancient

正确答案: C

解析：回到原文题干找到词汇出现的句子,“All four show distinctive lava channels and other flow features similar to those found on shield volcanoes on Earth.” 这句话的主语是all four, 谓语是show, 宾语是lava channels and flow features. 修饰lava channels 的是distinctive， 修饰flow features的是similar to those…所以distinctive和similar应该是对比的关系，similar是 “相似的”，那么找和distinctive的近义词选项就是找有“不相似的”意思的词，于是选C。Characteristic是“有特点的”之意，与distinctive, “独特的，特别的”是近义词。deep, 深的，深刻的； complex，复杂的；ancient, 古老的。希望考生考试之前尽量掌握这些词汇。

Q32 According to paragraphs 1 and 2, which of the following is NOT true of the shield volcanoes on the Tharsis bulge?

1. They have broad, sloping sides.
2. They are smaller than the largest volcano on Mars.
3. They have channels that resemble the lava channels of volcanoes on Earth.
4. They are over 25 kilometers tall.

Paragraph 1 and 2 are marked with an arrow [→].

正确答案：D

解析：注意题目要找的是NOT true的选项，也就是，其它三个选项的信息都能在原文1、2段中找到，所以需要逐一排除筛选出答案。A选项在第2段第2句话找得到对应； B 定位第一段最后一句话，“The three large volcanoes on the Tharsis bulge are a little smaller (than the largest volcano on Mars)”; C 在第二段中的对应在 ”lava channels and other flow features similar to those found on shield volcanoes on Earth”, resemble = be similar with. 排除法选出D选项。而且D 明显错误，可以直接定位第一段最后一句话，“The three large volcanoes on the Tharsis bulge— a "mere" 18 kilometers high”来反驳。

Paragraph 3

→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.

Q33 The word “roughly” in the passage is closest in meaning to

1. Typically
2. Frequently
3. Actually
4. Approximately

正确答案：D

解析：根据上下文可以准确地推断出D选项，并且不被A选项迷惑。 “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.” 这两句话对比来表示出在地球上和在火星上火山高度的差异，上句话说about 10 km, 下句话说高度的时候是roughly 2.5 times as high, 这两处高度的对比是相呼应的，roughly 对应 about, 选D，approximately “大约，近似”。Typically, 惯常地；frequently, 频繁地； actually，实际上地。希望考生考试之前尽量掌握这些词汇。

Q34 In paragraph 3, why does the author compare Maxwell Mons on Venus to the Hawaiian shield volcanoes on Earth?

1. To help explain the relationship between surface gravity and volcano height
2. To explain why Mars’s surface gravity is only 40 percent of Earth’s
3. To point out differences between the surface gravity of Earth and the surface gravity of Venus
4. To argue that there are more similarities than differences between volcanoes on different planets

Paragraph 3 is marked with an arrow [→].

正确答案：A

解析： 作者用Maxwell Mons 和Hawaiian shield volcanoes做对比明显是一个论据，那么就要根据上下文找论点。这个论据的论点就在它的上一句说道： “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.”也就是说这句话是为了举例说明gravity和 weight, height的关系。所以选A。

Paragraph 3

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.

Q35 Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.

1. Although direct evidence of recent eruptions is lacking, scientists believe that these volcanoes were active as recently as 100 million years ago.
2. Scientists estimate that volcanoes active more recently than 100 years ago will still have extensive impact cratering on their slopes.
3. If, as some evidence suggests, these volcanoes erupted as recently as 100 million years ago, they may continue to be intermittently active.
4. Although these volcanoes were active as recently as 100 million years ago, there is no direct evidence of recent or ongoing eruptions.

正确答案： C

解析：回答此题的关键在于找出原句的同义改写句。首先要理解原文句中的句子逻辑关系。原句前后是转折关系，先说科学家们没有证据证明这些火山最近是否还活跃， 关键在于but if后的句子，提出一种假设，在这种假设的前提下，这些火山就还是活跃的。所以符合此句同义改写的是C。

Paragraph 4

→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.

Q36 The word “considerably” in the passage is closest in meaning to

1. Frequently
2. Significantly
3. Clearly
4. Surprisingly

正确答案：B

解析：可以根据上下文推断出词汇的意思，理顺句间的逻辑关系，可以选出正确的释义选项。“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.” 上下文因为转折词however而决定了句间的转折关系。上句说的是月球上的crater都是表面的沙子填充，使月球表面有沙漠的地貌；下句说火星上的crater的填充物要比月球上的crater填充地\_\_\_\_\_\_快。最符合的是B选项，significantly，显著地，明显地。Considerably本身的意思是“非常；很；相当多地”，明显在此文中是”非常，很”的意思；clearly，清楚地；surprisingly, 令人惊讶地。希望考生考试之前尽量掌握这些词汇。

Q37 According to paragraph 4, what is demonstrated by the fact that craters fill in much faster on Mars than on the Moon?

1. Erosion from meteoritic impacts takes place more quickly on Mars than on the Moon.
2. There is more dust on Mars than on the Moon.
3. The surface of Mars is a dry desert.
4. Wind is a powerful eroding force on Mars.

Paragraph 4 is marked with arrows [→].

正确答案：D

解析：题干关键词：demonstrated by the fact 即弹坑在火星上能更快填满，相比在月亮上，这个事实说明了什么？定位原文第四段最后一句话，”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.” 所以”填充快”的决定性因素是风，选D。

Q38 In paragraph 4, why does the author point out that Mars has few ancient craters that are less than 5 kilometers in diameter?

1. To explain why scientists believe that the surface matter filling Martian craters is mostly dust
2. To explain why scientists believe that the impact craters on Mars were created by meteoroids
3. To support the claim that the Martian atmosphere is an efficient erosive agent
4. To argue that Mars experienced fewer ancient impacts than the Moon did

Paragraph 4 is marked with arrows [→].

正确答案： C

解析：根据题干定位原文中句子出现的位置，“On Mars, there are relatively few craters less than 5 kilometers in diameter.” 此句话阐述的是火星上的一种现象，下一句就解释了这种现象发生的原因。“The Martian atmosphere is an efficient erosive agent, with Martian winds transporting dust from place to place and erasing surface feature…”，直接选出C选项。

Paragraph 5

→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.

Q39 According to paragraph 5, what have scientists been able to determine from studies of large impact cratering on Mars?

1. Some Martian volcanoes are much older than was once thought.
2. The age of Mars’s surface can vary from area to area.
3. Large impact craters are not reliable indicators of age in areas with high volcanic activity.
4. Some areas of the Martian surface appear to be older than they actually are.

Paragraph 5 is marked with arrows [→].

正确答案：B

解析：题干的意思是科学家们通过large impact cratering可以得出什么科学结论。第五段的首句就已经开门见山的说了the extent of large impact cratering 是age indicator for the Martian surface，即其可以帮助判断M表面的年龄。然后下句有补充了“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.” 科学家们根据large impact cratering得到了这些年龄不同M表面有少有老的结论，所以选B。

Paragraph 6

→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.

Q40 According to paragraph 6, the ejecta of Mars’s crater Yuty differs from the ejecta of the Moon’s Copernicus crater in that the ejecta of the Yuty crater

1. Has now become part of a permafrost layer
2. Contains a large volume of dust, soil and boulders
3. Suggests that liquid once came out of the surface at the crater site
4. Was thrown a comparatively long distance from the center of the crater

Paragraph 6 is marked with arrows [→].

正确答案：C

解析：题干关键词是找火星上的crater Yuty和月亮上的crater Copernicus的不同。回到原文，找到描写两者不同的句子是“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.” 句子之间用however建立了转折关系，重点看however后面：a liquid that has splashed or flowed out of the crater. 选C。

Q41. Look at the four squares [■] that indicate where the following sentence could be added to the passage

**This surface feature has led to speculation about what may lie under Mars’s surface.**

Where would the sentence best fit? Click on a square [■]to add the sentence to the passage.

→ 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. 1■However, the ejecta on Mars gives the distinct impression of a liquid that has splashed or flowed out of crater. 2■Geologists think that this fluidized ejecta crater indicates that a layer of permafrost, or water ice, lies just a few meters under the surface. 3■Explosive impacts heated and liquefied the ice, resulting in the fluid appearance of the ejecta. 4■

正确答案：2

解析： 这个插入的句子要做到与上下文联系上。与上文联系的关键词是surface feature，所以找对应原文就是上句提到某个surface feature的地方；与下文联系的关键词是 speculation （推测，推断）， 这个推测的内容是lie under Mar's surface. 显然句子的后面要接这个是什么speculation。从文章的插入点来看，只有Geologists think是speculation, 因此也可以确定文章的位置应该在其之前。

Q42 **Directions:** An introductory sentence for a brief summary of the passage is provided below complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they egress ideas mat are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

1. Plate motion on Mars, once considered to have played no role in shaping the planet’s surface, is now seen as being directly associated with the planet’s earliest volcanoes.
2. Mars has shield volcanoes, some of which are extremely tall because of the planet’s low surface gravity.
3. Although the erosive power of the Martian atmosphere ensures that Mars has fewer craters than the Moon does, impact craters are prominent on Mars’s surface.
4. Scientists cannot yet reliably estimate the age of the Martian surface because there has been too much erosion of it.
5. Scientists have been surprised to discover that conditions just below the surface of Mars are very similar to conditions just below the surface of the Moon.
6. Studies of crater ejecta have revealed the possibility of a layer of permafrost below the surface of Mars.

正确答案：2, 3, 6

解析：第2句主要概括了第一、二、三段的大意：“火星上有盾状火山，其中一些是非常高的， 因为星球表面的重力低。“ 第3句主要概括了第五段的大意，“虽然火星大气的侵蚀力能保证火星上的火星比月球少，但火星表面上的陨石坑是很突出的。”第6句概括了第六段的大意：“火山喷出物的研究已经揭示了火星表面下一层冻土的可能性。”