

阅读基础L4

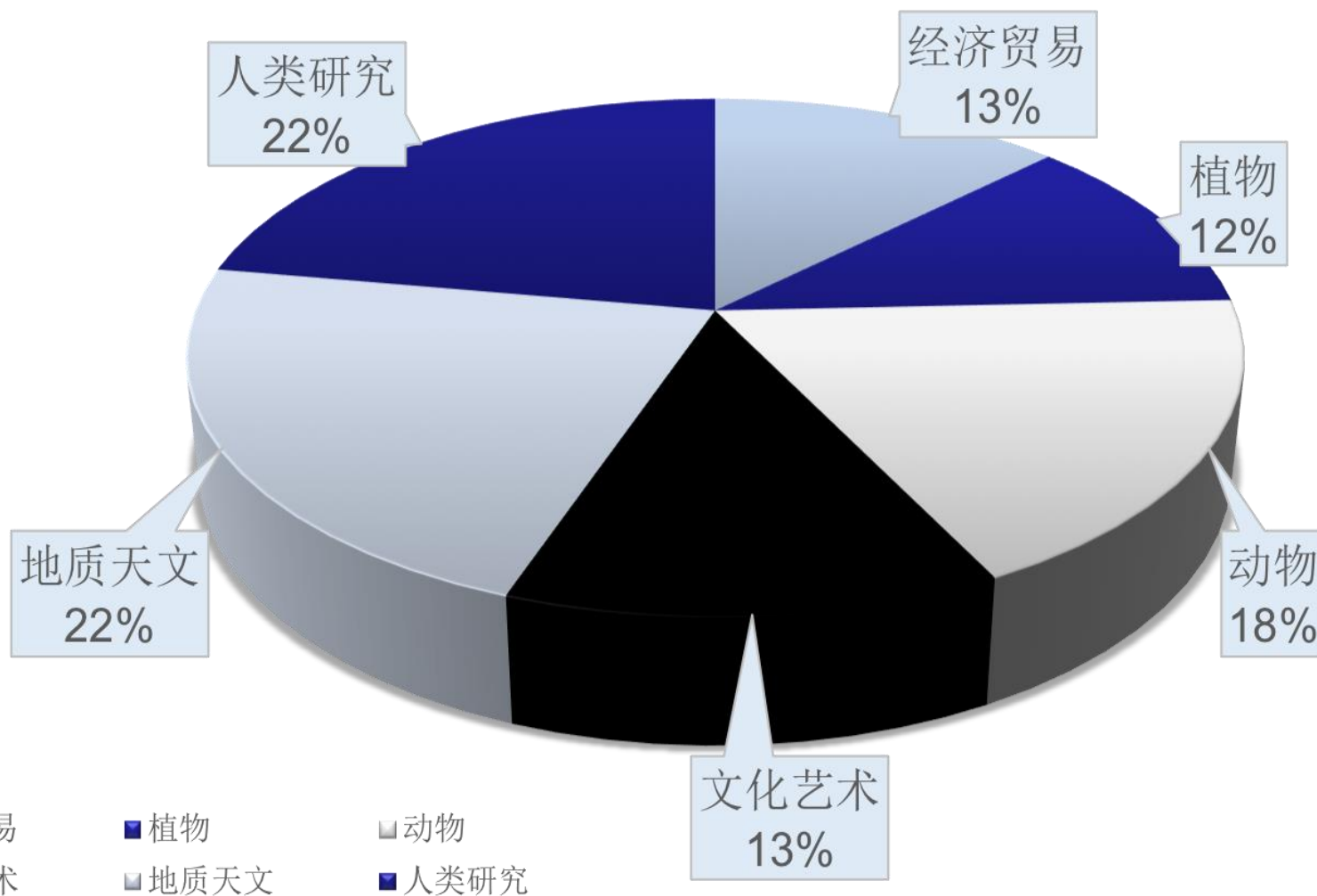
植物类





课程安排

1. 经济贸易类
2. 地质天文类
3. 动物类
4. 植物类
5. 文化艺术类
6. 人类研究类



1. 植物学考情&考点
2. 植物学词汇及背景知识
3. 植物学文章演练



1. 植物学 Botany

TPO1 Timberline vegetation on Mountains(山上树带界限的植被)

TPO3 The Long-Term Stability of Ecosystems(生态平衡的长期稳定性)

TPO5 Minerals and Plants (矿物和植物)

TPO9 The Arrival of Plant life in Hawaii(夏威夷植物的到来)

TPO19 Succession, Climax, and Ecosystems (演替，顶级群落和生态系统)

TPO22 Spartina (米草属植物)

TPO25 The Evolutionary Origin of Plants (植物的进化起源)

TPO26 Survival of Plants and Animals in Desert Conditions(动植物在沙漠环境的生存)

TPO30 The Pace of Evolutionary Change (进化的速度)

TPO31 Speciation in Geographically Isolated populations (地理隔离的物种形成)

TPO32 Plant Colonization (植物的定居)

TPO29 Competition (竞争)

TPO40 Latitude and Biodiversity (纬度和生物多样性)

TPO42 Geographic Isolation of Species (物种的地理隔离)

TPO44 Seagrasses (海草)

TPO45 Wind Pollination (风的授粉)

TPO46 Ecosystem Diversity and Stability (生态多样性和稳定性)



植物相关内容

- 1.起源
- 2.具体分类
- 3.树
- 4.花果
- 5.光合作用
- 6.生长地区



1. origin

root	根
stem	茎
leaves	叶

algae /'ældʒi:/	水藻
kelp /kɛlp/	大型褐藻
seaweed	海藻





2. 具体分类

flora 植物群

spore bearing plants
孢子植物

algae 藻类

moss 苔藓

fern 蕨类植物

lichen 地衣



seed plants 种子植物

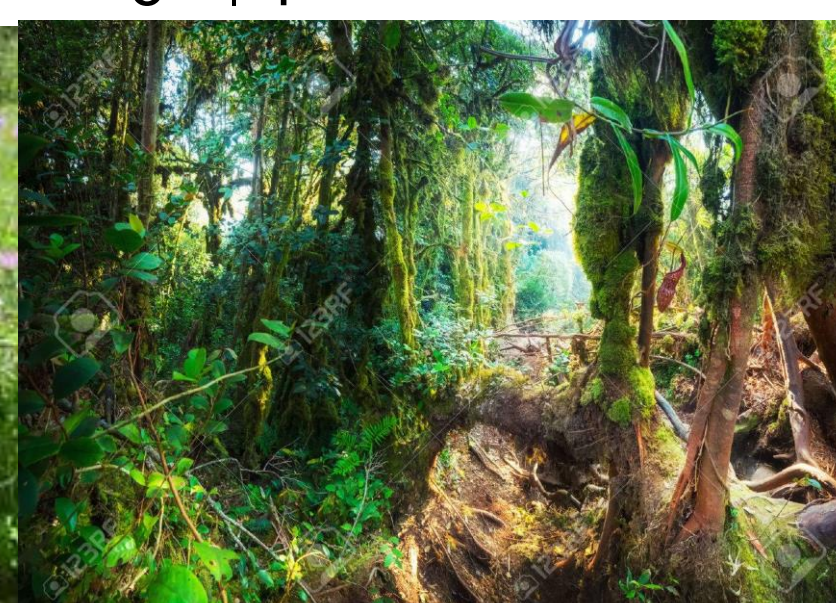
gymnosperm /'dʒɪmnəʊˌspɜːm/ 裸子植物

angiosperm/'ændʒiəˌspɜːm/ 被子植物

shrub/bush 灌木

herb 草/草本植物

jungle 热带丛林





3. trees

trunk	树干
bark	树皮
branch/bough /baʊ/	树枝
twig /twig/	细枝
bud	芽, 花蕾
stalk /stɔ:k/	柄; 梗
crown	树冠
deciduous /dɪ'sɪdʒuəs/	落叶的
evergreen	常绿的, 长绿植物
timber	木材



conifer	针叶树
cedar /'si:də/	雪松
fir	冷杉
pine	松树
birch	桦树
oak	橡树

4. Flowers and fruits



图5-12 花的结构模式图



flowering plant	开花植物
petal	花瓣
pistil /'pɪstl/	雌蕊
stamen /'steɪmən/	雄蕊
nectar /'nɛktə/	花蜜
pollen /'pɒlən/	花粉
pollinate	v. 给...传授花粉

stigma	柱头
seed	种子
fruit	果实
peel	果皮
flesh	果肉
shell	壳



Exercises

1. Since **wind-pollinated** flowers have no need to attract insects or other animals, they have dispensed (省掉) with bright **petals**, **nectar**, and scent.
2. Stingless bees are abundant in tropical and subtropical environments, where they gather **nectar** and **pollen** from a wide variety of flowers.
(TPO32-3)
3. DNA comparisons have shown that **green algae** are plants' closest living relatives.
(TPO25)

NC

新航道

NEW CHANNEL

托福官方三星级合作伙伴

CN4201C1

5. 光和作用(photosynthesis)

carbon dioxide

greenhouse gas

carbohydrate

oxygen

chlorophyll /'klɔ:rəfɪl/

chloroplast /'klɒrəplæst/

enzyme

二氧化碳

温室气体

碳水化合物

氧气

叶绿素

叶绿体

酶

阳光

吸收

吸收

吸收

吸收

二氧化碳

叶绿体

氧气

释放

Baidu

百科

吸收

光合作用简单过程图



Exercises

The ancestors (祖先) of plants were **photosynthetic** single-celled organisms that gave rise to plants presumably (可能) lacked true **roots, stems, leaves**, and complex reproductive structures such as flowers. (TPO25)

植物的祖先是能进行光合作用的单细胞生物，其产生的植物可能缺乏真正的根、茎、叶和复杂的生殖结构，如花。

In addition, other lines of evidence support the hypothesis that land plants evolved from ancestral green algae used the same type of **chlorophyll** and accessory (附加的) pigments in **photosynthesis** as do land plants.(TPO25)

此外，其他证据支持这样的假设，即陆地植物从古代的绿藻进化而来，其在光合作用中使用与陆地植物相同类型的叶绿素和附加色素。

From a plant's evolutionary view point, however, it was also a land of opportunity, free of competitors and predators and full of **carbon dioxide** and sunlight.(TPO25)

然而，从植物的进化观点来看，它也是一个机会之地，没有竞争者和捕食者，而且充满了二氧化碳和阳光。



6. 生长地区

tropical zone

subtropical zone

temperate /'tɛmpərɪt/ zone

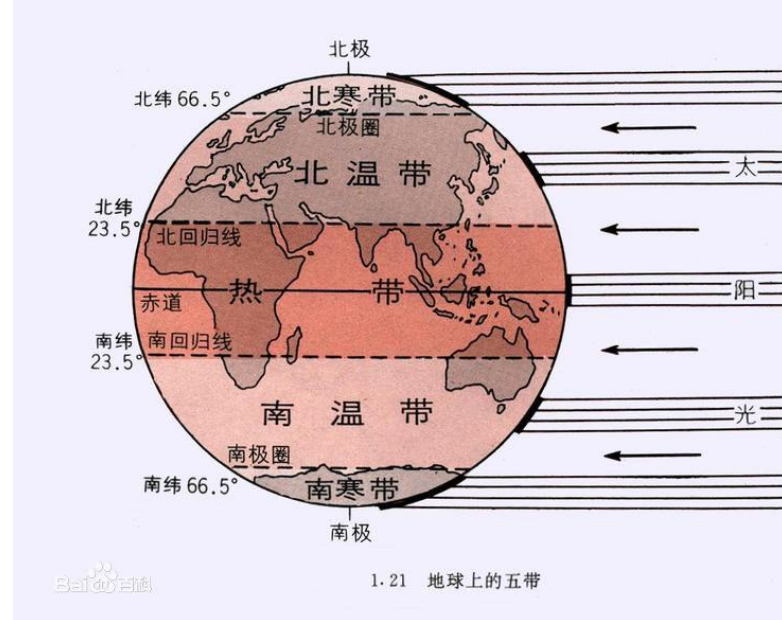
frigid zone

热带（南北回归线之间）

亚热带（温带靠近热带的地区）

温带（回归线到极圈）

寒带（极圈到极点）



meadow

草地

prairie

大草原

steppe /stɛp/

大草原

marsh /mɑːʃ/

沼泽

tundra /'tʌndrə/

冻原



TPO 1-1 Timberline Vegetation on Mountains

Paragraph 1

The transition from forest to treeless **tundra** on a mountain **slope** is often a dramatic one. Within a **vertical** distance of just a few tens of meters, trees disappear as a life-form and are replaced by low **shrubs**, **herbs**, and grasses. This rapid zone of transition is called the **upper timberline** or **tree line**. In many semiarid areas there is also a **lower timberline** where the forest passes into **steppe** or desert at its lower edge, usually because of a lack of moisture.

tundra /'tʌndrə/

冻原

slope

山坡

vertical

垂直的

shrub

灌木

herb

草本植物，药草

upper timberline

上层树带界限

steppe /stɛp/

大草原

- 1. 因果论证
- 2. 问题解释
- 3. 举例论证
- 4. 对比论证
- 5. 分类描述



The transition from forest to treeless tundra on a mountain slope is often a dramatic one. Within a vertical distance of just a few tens of meters, trees disappear as a life-form and are replaced by low shrubs, herbs, and grasses. This rapid zone of transition is called the upper timberline or tree line. In many semiarid areas there is also a lower timberline where the forest passes into steppe or desert at its lower edge, usually because of a lack of moisture.

Introduction:
upper timberline
lower timberline

论证方式:
分类描述

1. 因果论证
2. 问题解释
3. 举例论证
4. 对比论证
5. 分类描述



1. The word “dramatic” in the passage is closest in meaning to

- ☐ gradual
- ☐ complex
- ☐ visible
- ☒ striking

The transition from forest to treeless tundra on a mountain slope is often a **dramatic** one. Within a vertical distance of just a few tens of meters, trees disappear as a life-form and are replaced by low shrubs, herbs, and grasses. This rapid zone of transition is called the upper timberline or tree line. In many semiarid areas there is also a lower timberline where the forest passes into steppe or desert at its lower edge, usually because of a lack of moisture.



2. Where is the lower timberline mentioned in paragraph 1 likely to be found?

- ☒ In an area that has little water
- ☐ In an area that has little sunlight
- ☐ Above a transition area
- ☐ On a mountain that has no upper timberline.

The transition from forest to treeless tundra on a mountain slope is often a dramatic one. Within a vertical distance of just a few tens of meters, trees disappear as a life-form and are replaced by low shrubs, herbs, and grasses. This rapid zone of transition is called the upper timberline or tree line. In many semiarid areas there is also a lower timberline where the forest passes into steppe or desert at its lower edge, usually because of a lack of moisture.



3. Which of the following can be inferred from paragraph 1 about both the upper and lower timberlines?

- ☐ Both are treeless zones.
- ☐ Both mark forest boundaries.
- ☐ Both are surrounded by desert areas.
- ☐ Both suffer from a lack of moisture.

The transition from forest to treeless tundra on a mountain slope is often a dramatic one. Within a vertical distance of just a few tens of meters, trees disappear as a life-form and are replaced by low shrubs, herbs, and grasses. This rapid zone of transition is called the upper timberline or tree line. In many semiarid areas there is also a lower timberline where the forest passes into steppe or desert at its lower edge, usually because of a lack of moisture.



3. Which of the following can be inferred from paragraph 1 about both the upper and lower timberlines?

- ☐ Both are treeless zones.
- ☐ Both mark forest boundaries.
- ☐ Both are surrounded by desert areas.
- ☐ Both suffer from a lack of moisture.

The transition from forest to treeless tundra on a mountain slope is often a dramatic one. Within a vertical distance of just a few tens of meters, **trees disappear as a life-form and are replaced by** low shrubs, herbs, and grasses. This rapid zone of transition is called the upper timberline or tree line. In many semiarid areas there is also a lower timberline where the **forest passes into steppe or desert** at its lower edge, usually because of a lack of moisture.

Paragraph 2

The upper timberline, like the snow line, is highest in the tropics and lowest in the Polar Regions. It ranges from sea level in the Polar Regions to 4,500 meters in the dry **subtropics** and 3,500-4,500 meters in the moist tropics. Timberline trees are normally **evergreens**, suggesting that these have some advantage over **deciduous** trees (those that lose their leaves) in the extreme environments of the upper timberline. There are some areas, however, where **broadleaf** deciduous trees form the timberline. Species of **birch**, for example, may occur at the timberline in parts of the Himalayas.

subtropics

亚热带

evergreen

常绿植物，常青树

deciduous /dɪˈsɪdjʊəs/

落叶的

broadleaf

阔叶的

birch /bɜːtʃ/

桦树

- 1. 因果论证
- 2. 问题解释
- 3. 举例论证
- 4. 对比论证
- 5. 分类描述



The upper timberline, like the snow line, is highest in the tropics and lowest in the Polar Regions. It ranges from sea level in the Polar Regions to 4,500 meters in the dry subtropics and 3,500-4,500 meters in the moist tropics. Timberline trees are normally evergreens, suggesting that these have some advantage over deciduous trees (those that lose their leaves) in the extreme environments of the upper timberline. There are some areas, however, where broadleaf deciduous trees form the timberline. Species of birch, for example, may occur at the timberline in parts of the Himalayas.

Main idea:

Height

Types of trees

论证方法:

分类描述

对比论证

1. 因果论证
2. 问题解释
3. 举例论证
4. 对比论证
5. 分类描述

4. Paragraph 2 supports which of the following statements about deciduous trees?

- ☐ They cannot grow in cold climates.
- ☐ They do not exist at the upper timberline.
- ☐ They are less likely than evergreens to survive at the upper timberline.
- ☐ They do not require as much moisture as evergreens do.

Paragraph 2: The upper timberline, like the snow line, is highest in the tropics and lowest in the Polar Regions. It ranges from sea level in the Polar Regions to 4,500 meters in the dry subtropics and 3,500-4,500 meters in the moist tropics. Timberline trees are normally evergreens, suggesting that these have some advantage over deciduous trees (those that lose their leaves) in the extreme environments of the upper timberline. There are some areas, however, where broadleaf deciduous trees form the timberline. Species of birch, for example, may occur at the timberline in parts of the Himalayas.



4. Paragraph 2 supports which of the following statements about deciduous trees?

- ☐ They cannot grow in cold climates.
- ☐ They do not exist at the upper timberline.
- ☐ They are less likely than evergreens to survive at the upper timberline.
- ☐ They do not require as much moisture as evergreens do.

Paragraph 2: The upper timberline, like the snow line, is highest in the tropics and lowest in the Polar Regions. It ranges from sea level in the Polar Regions to 4,500 meters in the dry subtropics and 3,500-4,500 meters in the moist tropics. Timberline trees are normally evergreens, suggesting that **these have some advantage over deciduous trees (those that lose their leaves) in the extreme environments of the upper timberline.** There are some areas, however, where broadleaf deciduous trees form the timberline. **Species of birch, for example, may occur at the timberline in parts of the Himalayas.**

Paragraph 3

At the upper timberline the trees begin to become **twisted** and **deformed**. This is particularly true for trees in the middle and upper **latitudes**, which tend to attain greater heights on **ridges**, whereas in the tropics the trees reach their greater heights in the valleys. This is because middle- and upper-latitude timberlines are strongly influenced by the **duration** and depth of the **snow cover**. As the snow is deeper and lasts longer in the valleys, trees tend to attain greater heights on the ridges, even though they are more exposed to **high-velocity** winds and poor, thin soils there. In the tropics, the valleys appear to be more favorable because they are less prone to dry out, they have less **frost**, and they have deeper soils.

twisted

弯曲的，变形的

deformed

畸形的，变形的

latitudes

纬度，纬度地区

altitude

海拔

ridge

山脊

duration

持续时间

snow cover

雪盖

frost n.

霜冻

- 1. 因果论证
- 2. 问题解释
- 3. 举例论证
- 4. 对比论证
- 5. 分类描述



At the upper timberline the trees begin to become twisted and deformed. This is particularly true for trees in the middle and upper latitudes, which tend to attain greater heights on ridges, whereas in the tropics the trees reach their greater heights in the valleys. This is because middle- and upper-latitude timberlines are strongly influenced by the duration and depth of the snow cover. As the snow is deeper and lasts longer in the valleys, trees tend to attain greater heights on the ridges, even though they are more exposed to high-velocity winds and poor, thin soils there. In the tropics, the valleys appear to be more favorable because they are less prone to dry out, they have less frost, and they have deeper soils.

Main idea:

middle & upper latitudes, ridges

Tropics, valleys

论证方法:

问题解释

1. 因果论证
2. 问题解释
3. 举例论证
4. 对比论证
5. 分类描述



5. The word “attain” in the passage is closest in meaning to

- ☐ require
- ☐ resist
- ☒ achieve
- ☐ endure

Paragraph 3: At the upper timberline the trees begin to become twisted and deformed. This is particularly true for trees in the middle and upper latitudes, which tend to **attain** greater heights on ridges, whereas in the tropics the trees reach their greater heights in the valleys. This is because middle- and upper- latitude timberlines are strongly influenced by the duration and depth of the snow cover. As the snow is deeper and lasts longer in the valleys, trees tend to attain greater heights on the ridges, even though they are more exposed to high-velocity winds and poor, thin soils there. In the tropics, the valleys appear to be more favorable because they are less prone to dry out, they have less frost, and they have deeper soils.



6. The word “they” in the passage refers to

☐ valleys

☒ trees

☐ heights

☐ ridges

Paragraph 3: At the upper timberline the trees begin to become twisted and deformed. This is particularly true for trees in the middle and upper latitudes, which tend to attain greater heights on ridges, whereas in the tropics the trees reach their greater heights in the valleys. This is because middle- and upper- latitude timberlines are strongly influenced by the duration and depth of the snow cover. As the snow is deeper and lasts longer in the valleys, trees tend to attain greater heights on the ridges, even though **they** are more exposed to high-velocity winds and poor, thin soils there. In the tropics, the valleys appear to be more favorable because they are less prone to dry out, they have less frost, and they have deeper soils.



7. The word “prone” in the passage is closest in meaning to

- ☐ adapted
- ☒ likely
- ☐ difficult
- ☐ resistant

Paragraph 3: At the upper timberline the trees begin to become twisted and deformed. This is particularly true for trees in the middle and upper latitudes, which tend to attain greater heights on ridges, whereas in the tropics the trees reach their greater heights in the valleys. This is because middle- and upper- latitude timberlines are strongly influenced by the duration and depth of the snow cover. As the snow is deeper and lasts longer in the valleys, trees tend to attain greater heights on the ridges, even though they are more exposed to high-velocity winds and poor, thin soils there. In the tropics, the valleys appear to be more favorable because they are less **prone** to dry out, they have less frost, and they have deeper soils.



8. According to paragraph 3, which of the following is true of trees in the middle and upper latitudes?

- ☐ Tree growth is negatively affected by the snow cover in valleys.
- ☐ Tree growth is greater in valleys than on ridges.
- ☐ Tree growth on ridges is not affected by high-velocity winds.
- ☐ Tree growth lasts longer in those latitudes than it does in the tropics.

Paragraph 3: At the upper timberline the trees begin to become twisted and deformed. This is particularly true for trees in the middle and upper latitudes, which tend to attain greater heights on ridges, whereas in the tropics the trees reach their greater heights in the valleys. This is because middle- and upper- latitude timberlines are strongly influenced by the duration and depth of the snow cover. As the snow is deeper and lasts longer in the valleys, trees tend to attain greater heights on the ridges, even though they are more exposed to high-velocity winds and poor, thin soils there. In the tropics, the valleys appear to be more favorable because they are less prone to dry out, they have less frost, and they have deeper soils.



8. According to paragraph 3, which of the following is true of trees in the middle and upper latitudes?

- ☐ Tree growth is negatively affected by the snow cover in valleys.
- ☐ Tree growth is greater in valleys than on ridges.
- ☐ Tree growth on ridges is not affected by high-velocity winds.
- ☐ Tree growth lasts longer in those latitudes than it does in the tropics.

Paragraph 3: At the upper timberline the trees begin to become twisted and deformed. This is particularly true for trees in the middle and upper latitudes, which tend to attain greater heights on ridges, whereas in the tropics the trees reach their greater heights in the valleys. This is because middle- and upper- latitude timberlines are strongly influenced by the duration and depth of the snow cover. **As the snow is deeper and lasts longer in the valleys, trees tend to attain greater heights on the ridges, even though they are more exposed to high-velocity winds and poor, thin soils there.** In the tropics, the valleys appear to be more favorable because they are less prone to dry out, they have less frost, and they have deeper soils.

Paragraph 4



There is still no universally agreed-on explanation for why there should be such a dramatic cessation of tree growth at the upper timberline. Various environmental factors may play a role. Too much snow, for example, can **smother** trees, and **avalanches** and **snow creep** can damage or destroy them. **Late-lying** snow reduces the effective growing season to the point where **seedlings** cannot establish themselves. Wind velocity also increases with altitude and may cause serious stress for trees, as is made evident by the deformed shapes at high altitudes. Some scientists have proposed that the presence of increasing levels of **ultraviolet** light with **elevation** may play a role, while **browsing** and **grazing** animals like the **ibex** may be another contributing factor. Probably the most important environmental factor is temperature, for if the growing season is too short and temperatures are too low, tree **shoots** and **buds** cannot mature sufficiently to survive the winter months.

smother	ibex
使窒息，完全覆盖	野山羊
avalanche /'ævələntʃ/	shoot
雪崩	幼芽
snow creep	buds
积雪徐动	芽；花蕾
Late-lying snow	
经久不化的雪	
seedling	
幼苗	
ultraviolet /,ʌltrə'vaɪələt/	
紫外线的	
browse	1. 因果论证
嚼食植物	2. 问题解释
graze	3. 举例论证
吃草	4. 对比论证
	5. 分类描述



There is still no universally agreed-on explanation for why there should be such a dramatic cessation of tree growth at the upper timberline. Various environmental factors may play a role. Too much snow, for example, can smother trees, and avalanches and snow creep can damage or destroy them. Late-lying snow reduces the effective growing season to the point where seedlings cannot establish themselves. Wind velocity also increases with altitude and may cause serious stress for trees, as is made evident by the deformed shapes at high altitudes. Some scientists have proposed that the presence of increasing levels of ultraviolet light with elevation may play a role, while browsing and grazing animals like the ibex may be another contributing factor. Probably the most important environmental factor is temperature, for if the growing season is too short and temperatures are too low, tree shoots and buds cannot mature sufficiently to survive the winter months.

Factors for the cessation of tree growth:

1. snow
2. Wind
3. ultraviolet light
4. animals
5. Temperature

论证方式:
问题解释

1. 因果论证
2. 问题解释
3. 举例论证
4. 对比论证
5. 分类描述



9. Wind velocity also increases with altitude and may cause serious stress for trees, as is made evident by the deformed shapes at high altitudes.

○ Because of their deformed shapes at high altitudes, trees are not likely to be seriously harmed by the strong winds typical of those altitudes.

○ As altitude increases, the velocity of winds increase, leading to a serious decrease in the number of trees found at high altitudes.

○ The deformed shapes of trees at high altitudes show that wind velocity, which increase with altitude, can cause serious hardship for trees.

○ Increased wind velocity at high altitudes deforms the shapes of trees, and this may cause serious stress for trees.



10. In paragraph 4, what is the author's main purpose in the discussion of the dramatic cessation of tree growth at the upper timberline?

☐ To argue that none of several environment factors that are believed to contribute to that phenomenon do in fact play a role in causing it.

☐ To argue in support of one particular explanation of that phenomenon against several competing explanations

☐ To explain why the primary environmental factor responsible for that phenomenon has not yet been identified

☒ To present several environmental factors that may contribute to a satisfactory explanation of that phenomenon

There is still no universally agreed-on explanation for why there should be such a dramatic cessation of tree growth at the upper timberline. Various environmental factors may play a role. Too much snow, for example, can smother trees, and avalanches and snow creep can damage or destroy them. Late-lying snow reduces the effective growing season to the point where seedlings cannot establish themselves. Wind velocity also increases with altitude and may cause serious stress for trees, as is made evident by the deformed shapes at high altitudes. Some scientists have proposed that the presence of increasing levels of ultraviolet light with elevation may play a role, while browsing and grazing animals like the ibex may be another contributing factor. Probably the most important environmental factor is temperature, for if the growing season is too short and temperatures are too low, tree shoots and buds cannot mature sufficiently to survive the winter months.

Paragraph 5

Above the tree line there is a zone that is generally called **alpine tundra**. Immediately adjacent to the timberline, the tundra consists of a fairly complete cover of low-lying shrubs, herbs, and grasses, while higher up the number and diversity of species decrease until there is much bare ground with occasional **mosses** and **lichens** and some **prostrate cushion plants**. Some plants can even survive in favorable microhabitats above the snow line. The highest plants in the world occur at around 6,100 meters on Makalu in the Himalayas. At this great height, rocks, warmed by the sun, melt small **snowdrifts**.

alpine tundra /'ælpain/

高山冻原

moss

苔藓

lichen /'laɪkən/

地衣

prostrate /'prɒstreɪt/

俯卧的

cushion plants

垫状植物

snowdrift

雪堆

- 1. 因果论证
- 2. 问题解释
- 3. 举例论证
- 4. 对比论证
- 5. 分类描述



Above the tree line there is a zone that is generally called alpine tundra. Immediately adjacent to the timberline, the tundra consists of a fairly complete cover of low-lying shrubs, herbs, and grasses, while higher up the number and diversity of species decrease until there is much bare ground with occasional mosses and lichens and some prostrate cushion plants. Some plants can even survive in favorable microhabitats above the snow line. The highest plants in the world occur at around 6,100 meters on Makalu in the Himalayas. At this great height, rocks, warmed by the sun, melt small snowdrifts.

Main idea:

Plants in alpine tundra
and higher places

论证方法:
分类描述

1. 因果论证
2. 问题解释
3. 举例论证
4. 对比论证
5. 分类描述

Above the tree line there is a zone that is generally called alpine tundra. 【】 Immediately adjacent to the timberline, the tundra consists of a fairly complete cover of low-lying shrubs, herbs, and grasses, while higher up the number and diversity of species decrease until there is much bare ground with occasional mosses and lichens and some prostrate cushion plants. 【】 Some plants can even survive in favorable microhabitats above the snow line. The highest plants in the world occur at around 6,100 meters on Makalu in the Himalayas. 【】 At this great height, rocks, warmed by the sun, melt small snowdrifts. 【】

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

This explains how, for example, alpine cushion plants have been found growing at an altitude of 6,180 meters.

Where would the sentence best fit?

Paragraph 6

The most striking characteristic of the plants of the alpine zone is their low growth form. This enables them to avoid the worst **rigors** of high winds and permits them to make use of the higher temperatures immediately adjacent to the ground surface. In an area where low temperatures are limiting to life, the importance of the additional heat near the surface is crucial. The low growth form can also permit the plants to take advantage of the **insulation** provided by a winter snow cover. In the **equatorial** mountains the low growth form is less prevalent.

rigor

严酷

insulation

隔热，绝缘

equatorial /ˌɛkwə'tɔːriəl/

赤道附近的

1. 因果论证
2. 问题解释
3. 举例论证
4. 对比论证
5. 分类描述



The most striking characteristic of the plants of the alpine zone is their low growth form. This enables them to avoid the worst rigors of high winds and permits them to make use of the higher temperatures immediately adjacent to the ground surface. In an area where low temperatures are limiting to life, the importance of the additional heat near the surface is crucial. The low growth form can also permit the plants to take advantage of the insulation provided by a winter snow cover. In the equatorial mountains the low growth form is less prevalent.

Main idea:
low growth form

论证方法:
分类描述

1. 因果论证
2. 问题解释
3. 举例论证
4. 对比论证
5. 分类描述



11. The word “prevalent” in the passage is closest in meaning to

- ☐ predictable
- ☒ widespread
- ☐ successful
- ☐ developed

Paragraph 6: The most striking characteristic of the plants of the alpine zone is their low growth form. This enables them to avoid the worst rigors of high winds and permits them to make use of the higher temperatures immediately adjacent to the ground surface. In an area where low temperatures are limiting to life, the importance of the additional heat near the surface is crucial. The low growth form can also permit the plants to take advantage of the insulation provided by a winter snow cover. In the equatorial mountains the low growth form is less **prevalent**.



12. According to paragraph 6, all of the following statements are true of plants in the alpine zone EXCEPT:

- Because they are low, they are less exposed to strong winds.
- Because they are low, the winter snow cover gives them more protection from the extreme cold.
- In the equatorial mountains, they tend to be lower than in mountains elsewhere.
- Their low growth form keeps them closer to the ground, where there is more heat than further up.

The most striking characteristic of the plants of the alpine zone is their low growth form. This enables them to avoid the worst rigors of high winds and permits them to make use of the higher temperatures immediately adjacent to the ground surface. In an area where low temperatures are limiting to life, the importance of the additional heat near the surface is crucial. The low growth form can also permit the plants to take advantage of the insulation provided by a winter snow cover. In the equatorial mountains the low growth form is less prevalent.



12. According to paragraph 6, all of the following statements are true of plants in the alpine zone EXCEPT:

○ Because they are low, they are less exposed to strong winds.

○ Because they are low, the winter snow cover gives them more protection from the extreme cold.

○ In the equatorial mountains, they tend to be lower than in mountains elsewhere.

○ Their low growth form keeps them closer to the ground, where there is more heat than further up.

The most striking characteristic of the plants of the alpine zone is their low growth form. This enables them to **avoid the worst rigors of high winds** and permits them to **make use of the higher temperatures immediately adjacent to the ground surface**. In an area where low temperatures are limiting to life, the importance of the additional heat near the surface is crucial. **The low growth form can also permit the plants to take advantage of the insulation provided by a winter snow cover**. In the equatorial mountains **the low growth form is less prevalent**.

1. Introduction: upper timberline + lower timberline
2. Height & Types of trees
3. middle & upper latitudes, ridges / Tropics, valleys
4. No agreed-on explanation
5. Plants: alpine tundra/ higher up/ above the snow line
6. low growth form

14. At the timberline, whether upper or lower, there is a profound change in the growth of trees and other plants.

A.Birch is one of the few species of tree that can survive in the extreme environments of the upper timberline.

B.There is no agreement among scientists as to exactly why plant growth is sharply different above and below the upper timberline.

C.The temperature at the upper timberline is probably more important in preventing tree growth than factors such as the amount of snowfall or the force of winds.

D.The geographical location of an upper timberline has an impact on both the types of trees found there and their physical characteristics.

E.High levels of ultraviolet light most likely play a greater role in determining tree growth at the upper timberline than do grazing animals such as the ibex.

F.Despite being adjacent to the timberline, the alpine tundra is an area where certain kinds of low trees can endure high winds and very low temperatures.



14. At the timberline, whether upper or lower, there is a profound change in the growth of trees and other plants.

A. Birch is one of the few species of tree that can survive in the extreme environments of the upper timberline. 细节

B. There is no agreement among scientists as to exactly why plant growth is sharply different above and below the upper timberline. 第四段

C. The temperature at the upper timberline is probably more important in preventing tree growth than factors such as the amount of snowfall or the force of winds. 第四段

D. The geographical location of an upper timberline has an impact on both the types of trees found there and their physical characteristics. 二三段

E. High levels of ultraviolet light most likely play a greater role in determining tree growth at the upper timberline than do grazing animals such as the ibex. 第四段

F. Despite being adjacent to the timberline, the alpine tundra is an area where certain kinds of low trees can endure high winds and very low temperatures. 最后一段

(endure, 原文avoid)



TPO 3-3

The Long-Term Stability of Ecosystems

Paragraph 1

Plant **communities assemble** themselves flexibly, and their particular structure depends on the specific history of the area. Ecologists use the term “**succession**” to refer to the changes that happen in plant communities and ecosystems over time. The first community in a succession is called a **pioneer community**, while the long-lived community at the end of succession is called a **climax community**. Pioneer and **successional** plant communities are said to change over periods from 1 to 500 years. These changes—in plant numbers and the mix of species—are cumulative. Climax communities themselves change but over periods of time greater than about 500 years.

communities
社区，社会，群落
assemble
聚集，组装，集合
resemble
像=look like
succession
连续，演替
pioneer community
先锋群落
climax community
顶极群落
successional
连续的

1. 因果论证
2. 问题解释
3. 举例论证
4. 对比论证
5. 分类描述

Plant communities assemble themselves flexibly, and their particular structure depends on the specific history of the area. Ecologists use the term “succession” to refer to the changes that happen in plant communities and ecosystems over time. The first community in a succession is called a pioneer community, while the long-lived community at the end of succession is called a climax community. Pioneer and successional plant communities are said to change over periods from 1 to 500 years. These changes—in plant numbers and the mix of species—are cumulative. Climax communities themselves change but over periods of time greater than about 500 years.

Main idea:
succession
pioneer community
climax community

论证方法:
分类描述

1. 因果论证
2. 问题解释
3. 举例论证
4. 对比论证
5. 分类描述



1. The word “particular” in the passage is closest in meaning to

- ☐ Natural
- ☐ Final
- ☒ Specific
- ☐ Complex

Paragraph 1: Plant communities assemble themselves flexibly, and their **particular** structure depends on the specific history of the area. Ecologists use the term “succession” to refer to the changes that happen in plant communities and ecosystems over time. The first community in a succession is called a pioneer community, while the long-lived community at the end of succession is called a climax community. Pioneer and successional plant communities are said to change over periods from 1 to 500 years. These changes—in plant numbers and the mix of species—are cumulative. Climax communities themselves change but over periods of time greater than about 500 years.



2. According to paragraph 1, which of the following is NOT true of climax communities?

☐ They occur at the end of a succession.

☐ They last longer than any other type of community.

☐ The numbers of plants in them and the mix of species do not change.

☐ They remain stable for at least 500 years at a time.

Plant communities assemble themselves flexibly, and their particular structure depends on the specific history of the area. Ecologists use the term “succession” to refer to the changes that happen in plant communities and ecosystems over time. The first community in a succession is called a pioneer community, while the long-lived community at the end of succession is called a climax community. Pioneer and successional plant communities are said to change over periods from 1 to 500 years. These changes—in plant numbers and the mix of species—are cumulative. Climax communities themselves change but over periods of time greater than about 500 years.



2. According to paragraph 1, which of the following is NOT true of climax communities?

☐ They occur at the end of a succession.

☐ They last longer than any other type of community.

☐ The numbers of plants in them and the mix of species do not change.

☐ They remain stable for at least 500 years at a time.

Plant communities assemble themselves flexibly, and their particular structure depends on the specific history of the area. Ecologists use the term “succession” to refer to the changes that happen in plant communities and ecosystems over time. The first community in a succession is called a pioneer community, while the long-lived community at the end of succession is called a climax community.

Pioneer and successional plant communities are said to change over periods from 1 to 500 years. These changes—in plant numbers and the mix of species—are cumulative. Climax communities themselves change but over periods of time greater than about 500 years.

Paragraph 2



An ecologist who studies a pond today may well find it relatively unchanged in a year's time. Individual fish may be replaced, but the number of fish will tend to be the same from one year to the next. We can say that the properties of an ecosystem are more stable than the individual **organisms** that compose the ecosystem.

organism

生物，有机体

1. 因果论证
2. 问题解释
3. 举例论证
4. 对比论证
5. 分类描述



An ecologist who studies a pond today may well find it relatively unchanged in a year's time. Individual fish may be replaced, but the number of fish will tend to be the same from one year to the next. We can say that the properties of an ecosystem are more stable than the individual organisms that compose the ecosystem.

Main idea:
properties of an ecosystem are more stable than the individual organisms.

论证方法:
因果论证

1. 因果论证
2. 问题解释
3. 举例论证
4. 对比论证
5. 分类描述

3. According to paragraph 2, which of the following principles of ecosystems can be learned by studying a pond?
- ☐ Ecosystem properties change more slowly than individuals in the system.
 - ☐ The stability of an ecosystem tends to change as individuals are replaced.
 - ☐ Individual organisms are stable from one year to the next.
 - ☐ A change in the members of an organism does not affect an ecosystem's properties

An ecologist who studies a pond today may well find it relatively unchanged in a year's time. Individual fish may be replaced, but the number of fish will tend to be the same from one year to the next. We can say that the properties of an ecosystem are more stable than the individual organisms that compose the ecosystem.

3. According to paragraph 2, which of the following principles of ecosystems can be learned by studying a pond?

- ☐ Ecosystem properties change more slowly than individuals in the system.
- ☐ The stability of an ecosystem tends to change as individuals are replaced.
- ☐ Individual organisms are stable from one year to the next.
- ☐ A change in the members of an organism does not affect an ecosystem's properties

An ecologist who studies a pond today may well find it relatively unchanged in a year's time. Individual fish may be replaced, but the number of fish will tend to be the same from one year to the next. We can say that the properties of an ecosystem are more stable than the individual organisms that compose the ecosystem.

Paragraph 3

At one time, ecologists believed that species diversity made ecosystems stable. They believed that the greater the diversity the more stable the ecosystem. Support for this idea came from the observation that long-lasting climax communities usually have more complex food webs and more species diversity than pioneer communities. Ecologists concluded that the apparent stability of climax ecosystems depended on their complexity. To take an extreme example, farmlands dominated by a single crop are so unstable that one year of bad weather or the invasion of a single **pest** can destroy the entire crop. In contrast, a complex climax community, such as a **temperate** forest, will tolerate considerable damage from weather to pests.

pest

害虫

temperate /'tɛmpərɪt/

温和的

1. 因果论证
2. 问题解释
3. 举例论证
4. 对比论证
5. 分类描述

At one time, ecologists believed that species diversity made ecosystems stable. They believed that the greater the diversity the more stable the ecosystem. Support for this idea came from the observation that long-lasting climax communities usually have more complex food webs and more species diversity than pioneer communities. Ecologists concluded that the apparent stability of climax ecosystems depended on their complexity. To take an extreme example, farmlands dominated by a single crop are so unstable that one year of bad weather or the invasion of a single pest can destroy the entire crop. In contrast, a complex climax community, such as a temperate forest, will tolerate considerable damage from weather to pests.

Main idea:

The greater the diversity the more stable the ecosystem

论证方法:

举例论证

1. 因果论证
2. 问题解释
3. 举例论证
4. 对比论证
5. 分类描述



4. According to paragraph 3, ecologists once believed that which of the following illustrated the most stable ecosystems?

- ☐ Pioneer communities
- ☐ Climax communities
- ☐ Single-crop farmlands
- ☐ Successional plant communities

At one time, ecologists believed that species diversity made ecosystems stable. They believed that the greater the diversity the more stable the ecosystem. Support for this idea came from the observation that long-lasting climax communities usually have more complex food webs and more species diversity than pioneer communities. Ecologists concluded that the apparent stability of climax ecosystems depended on their complexity. To take an extreme example, farmlands dominated by a single crop are so unstable that one year of bad weather or the invasion of a single pest can destroy the entire crop. In contrast, a complex climax community, such as a temperate forest, will tolerate considerable damage from weather or pests.



4. According to paragraph 3, ecologists once believed that which of the following illustrated the most stable ecosystems?

- ☐ Pioneer communities
- ☒ Climax communities
- ☐ Single-crop farmlands
- ☐ Successional plant communities

At one time, ecologists believed that species diversity made ecosystems stable. They believed that the greater the diversity the more stable the ecosystem. **Support for this idea came from the observation that long-lasting climax communities usually have more complex food webs and more species diversity than pioneer communities.** Ecologists concluded that the apparent stability of climax ecosystems depended on their complexity. To take an extreme example, farmlands dominated by a single crop are so unstable that one year of bad weather or the invasion of a single pest can destroy the entire crop. In contrast, a complex climax community, such as a temperate forest, will tolerate considerable damage from weather or pests.

Paragraph 4

The question of ecosystem stability is complicated, however. The first problem is that ecologists do not all agree what “stability” means. Stability can be defined as simply lack of change. In that case, the climax community would be considered the most stable, since, by definition, it changes the least over time. Alternatively, stability can be defined as the speed with which an ecosystem returns to a particular form following a major **disturbance**, such as a fire. This kind of stability is also called **resilience**. In that case, climax communities would be the most fragile and the least stable, since they can require hundreds of years to return to the climax state.

disturbance
扰乱
resilience
弹力，还原能力，适应能力

1. 因果论证
2. 问题解释
3. 举例论证
4. 对比论证
5. 分类描述



The question of ecosystem stability is complicated, however. The first problem is that ecologists do not all agree what “stability” means. Stability can be defined as simply lack of change. In that case, the climax community would be considered the most stable, since, by definition, it changes the least over time. Alternatively, stability can be defined as the speed with which an ecosystem returns to a particular form following a major disturbance, such as a fire. This kind of stability is also called resilience. In that case, climax communities would be the most fragile and the least stable, since they can require hundreds of years to return to the climax state.

Main idea:

The question of ecosystem stability is complicated:

lack of change

Resilience

论证方法:

问题解释

1. 因果论证
2. 问题解释
3. 举例论证
4. 对比论证
5. 分类描述



5. According to paragraph 4, why is the question of ecosystem stability complicated?

- ☐ The reasons for ecosystem change are not always clear.
- ☐ Ecologists often confuse the word “stability” with the word “resilience.”
- ☒ The exact meaning of the word “stability” is debated by ecologists.
- ☐ There are many different answers to ecological questions.

Paragraph 4: The question of ecosystem stability is complicated, however. The first problem is that ecologists do not all agree what “stability” means. Stability can be defined as simply lack of change. In that case, the climax community would be considered the most stable, since, by definition, it changes the least over time. Alternatively, stability can be defined as the speed with which an ecosystem returns to a particular form following a major disturbance, such as a fire. This kind of stability is also called resilience. In that case, climax communities would be the most fragile and the least stable, since they can require hundreds of years to return to the climax state.



6. According to paragraph 4, which of the following is true of climax communities?

☐ They are more resilient than pioneer communities.

☐ They can be considered both the most and the least stable communities.

☐ They are stable because they recover quickly after major disturbances.

☐ They are the most resilient communities because they change the least over time.

Paragraph 4: The question of ecosystem stability is complicated, however. The first problem is that ecologists do not all agree what “stability” means. Stability can be defined as simply lack of change. In that case, the climax community would be considered the most stable, since, by definition, it changes the least over time. Alternatively, stability can be defined as the speed with which an ecosystem returns to a particular form following a major disturbance, such as a fire. This kind of stability is also called resilience. In that case, climax communities would be the most fragile and the least stable, since they can require hundreds of years to return to the climax state.



6. According to paragraph 4, which of the following is true of climax communities?

☐ They are more resilient than pioneer communities.

☒ They can be considered both the most and the least stable communities.

☐ They are stable because they recover quickly after major disturbances.

☐ They are the most resilient communities because they change the least over time.

Paragraph 4: The question of ecosystem stability is complicated, however. The first problem is that ecologists do not all agree what “stability” means. Stability can be defined as simply lack of change. In that case, **the climax community would be considered the most stable**, since, by definition, it changes the least over time. Alternatively, stability can be defined as the speed with which an ecosystem returns to a particular form following a major disturbance, such as a fire. This kind of stability is also called resilience. In that case, **climax communities would be the most fragile and the least stable, since they can require hundreds of years to return to the climax state.**

Paragraph 5

Even the kind of stability defined as simple lack of change is not always associated with maximum diversity. At least in temperate zones, maximum diversity is often found in mid-successional stages, not in the climax community. Once a redwood forest matures, for example, the kinds of species and the number of individuals growing on the forest floor are reduced. In general, diversity, by itself, does not ensure stability. Mathematical models of ecosystems likewise suggest that diversity does not guarantee ecosystem stability—just the opposite, in fact. A more complicated system is, in general, more likely than a simple system to break down. A fifteen-speed racing bicycle is more likely to break down than a child’s tricycle.

Main idea:
Diversity does not ensure stability.

论证方法:
举例论证

- 1. 因果论证
- 2. 问题解释
- 3. 举例论证
- 4. 对比论证
- 5. 分类描述



7. Which of the following can be inferred from paragraph 5 about redwood forests?

- ☐ They become less stable as they mature.
- ☐ They support many species when they reach climax.
- ☐ They are found in temperate zones.
- ☐ They have reduced diversity during mid-successional stages.

Paragraph 5: Even the kind of stability defined as simple lack of change is not always associated with maximum diversity. At least in temperate zones, maximum diversity is often found in mid-successional stages, not in the climax community. Once a redwood forest matures, for example, the kinds of species and the number of individuals growing on the forest floor are reduced. In general, diversity, by itself, does not ensure stability. Mathematical models of ecosystems likewise suggest that diversity does not guarantee ecosystem stability—just the opposite, in fact. A more complicated system is, in general, more likely than a simple system to break down. (A fifteen-speed racing bicycle is more likely to break down than a child's tricycle.)



7. Which of the following can be inferred from paragraph 5 about redwood forests?

- ☐ They become less stable as they mature.
- ☐ They support many species when they reach climax.
- ☐ They are found in temperate zones.
- ☐ They have reduced diversity during mid-successional stages.

Paragraph 5: Even the kind of stability defined as simple lack of change is not always associated with maximum diversity. At least in temperate zones, maximum diversity is often found in mid-successional stages, not in the climax community. Once a redwood forest matures, for example, the kinds of species and the number of individuals growing on the forest floor are reduced. In general, diversity, by itself, does not ensure stability. Mathematical models of ecosystems likewise suggest that diversity does not guarantee ecosystem stability—just the opposite, in fact. A more complicated system is, in general, more likely than a simple system to break down. (A fifteen-speed racing bicycle is more likely to break down than a child's tricycle.)



8. The word “guarantee” in the passage is closest in meaning to

- ☐ Increase
- ☒ Ensure
- ☐ Favor
- ☐ Complicate

Paragraph 5: Even the kind of stability defined as simple lack of change is not always associated with maximum diversity. At least in temperate zones, maximum diversity is often found in mid-successional stages, not in the climax community. Once a redwood forest matures, for example, the kinds of species and the number of individuals growing on the forest floor are reduced. In general, diversity, by itself, does not ensure stability. Mathematical models of ecosystems likewise suggest that diversity does not **guarantee** ecosystem stability—just the opposite, in fact. A more complicated system is, in general, more likely than a simple system to break down. (A fifteen-speed racing bicycle is more likely to break down than a child’s tricycle.)



9. In paragraph 5, why does the author provide the information that “(A fifteen-speed racing bicycle is more likely to break down than a child’s tricycle)”?

☐ To illustrate a general principle about the stability of systems by using an everyday example

☐ To demonstrate that an understanding of stability in ecosystems can be applied to help understand stability in other situations

☐ To make a comparison that supports the claim that, in general, stability increases with diversity

☐ To provide an example that contradicts mathematical models of ecosystems

Even the kind of stability defined as simple lack of change is not always associated with maximum diversity. At least in temperate zones, maximum diversity is often found in mid-successional stages, not in the climax community. Once a redwood forest matures, for example, the kinds of species and the number of individuals growing on the forest floor are reduced. In general, diversity, by itself, does not ensure stability. Mathematical models of ecosystems likewise suggest that diversity does not guarantee ecosystem stability—just the opposite, in fact. A more complicated system is, in general, more likely than a simple system to break down. (A fifteen-speed racing bicycle is more likely to break down than a child’s tricycle.)

Paragraph 6

Ecologists are especially interested to know what factors contribute to the resilience of communities because climax communities all over the world are being severely damaged or destroyed by human activities. The destruction caused by the volcanic explosion of Mount St. Helens, in the northwestern United States, for example, pales in comparison to the destruction caused by humans. We need to know what aspects of a community are most important to the community's resistance to destruction, as well as its recovery.

Main idea:

what factors contribute to the resilience,
damaged by human activities

论证方法:
问题解释

1. 因果论证
2. 问题解释
3. 举例论证
4. 对比论证
5. 分类描述



10. The word “pales” in the passage is closest in meaning to

- ☐ Increases proportionally
- ☐ Differs
- ☒ Loses significance
- ☐ Is common

Ecologists are especially interested to know what factors contribute to the resilience of communities because climax communities all over the world are being severely damaged or destroyed by human activities. The destruction caused by the volcanic explosion of Mount St. Helens, in the northwestern United States, for example, **pales** in comparison to the destruction caused by humans. We need to know what aspects of a community are most important to the community's resistance to destruction, as well as its recovery.

Paragraph 7

Many ecologists now think that the relative long-term stability of climax communities comes not from diversity but from the “**patchiness**” of the environment, an environment that varies from place to place supports more kinds of organisms than an environment that is uniform. A local **population** that goes extinct is quickly replaced by immigrants from an adjacent community. Even if the new population is of a different species, it can approximately fill the **niche vacated** by the extinct population and keep the food web intact.

patchy

分布不均衡的

patchiness

补缀

population

种群

niche /nɪtʃ, niːʃ/

生态龛

[指动植物物种在生物种群中的地位]

vacate /veɪˈkeɪt/

腾出

vacant

空着的

- 1. 因果论证
- 2. 问题解释
- 3. 举例论证
- 4. 对比论证
- 5. 分类描述



Many ecologists now think that the relative long-term stability of climax communities comes not from diversity but from the “patchiness” of the environment, an environment that varies from place to place supports more kinds of organisms than an environment that is uniform. A local population that goes extinct is quickly replaced by immigrants from an adjacent community. Even if the new population is of a different species, it can approximately fill the niche vacated by the extinct population and keep the food web intact.

Main idea:
stability comes from patchiness

论证方法:
问题解释

1. 因果论证
2. 问题解释
3. 举例论证
4. 对比论证
5. 分类描述



句子简化题

11. ○Ecologists now think that the stability of an environment is a result of diversity rather than patchiness.

○Patchy environments that vary from place to place do not often have high species diversity.

○Uniform environments cannot be climax communities because they do not support as many types of organisms as patchy environments.

○A patchy environment is thought to increase stability because it is able to support a wide variety of organisms.

Many ecologists now think that the relative long-term stability of climax communities comes not from diversity but from the “patchiness” of the environment, an environment that varies from place to place supports more kinds of organisms than an environment that is uniform. A local population that goes extinct is quickly replaced by immigrants from an adjacent community. Even if the new population is of a different species, it can approximately fill the niche vacated by the extinct population and keep the food web intact.



12. The word “adjacent” in the passage is closest in meaning to

- ☐ Foreign
- ☐ Stable
- ☐ Fluid
- ☐ Neighboring

Many ecologists now think that the relative long-term stability of climax communities comes not from diversity but from the “patchiness” of the environment, an environment that varies from place to place supports more kinds of organisms than an environment that is uniform. A local population that goes extinct is quickly replaced by immigrants from an adjacent community. Even if the new population is of a different species, it can approximately fill the niche vacated by the extinct population and keep the food web intact.

Paragraph 6: ■ Ecologists are especially interested to know what factors contribute to the resilience of communities because climax communities all over the world are being severely damaged or destroyed by human activities. ■ The destruction caused by the volcanic explosion of Mount St. Helens, in the northwestern United States, for example, pales in comparison to the destruction caused by humans. ■ We need to know what aspects of a community are most important to the community’s resistance to destruction, as well as its recovery. ■

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

In fact, damage to the environment by humans is often much more severe than damage by natural events and processes.



summary

1. Introduction: pioneer community/climax community
2. properties of an ecosystem are more stable than the individual organisms.
3. the greater the diversity, the more stable the ecosystem
4. Stability? complicated
5. Diversity does not ensure stability.
6. what factors contribute to the resilience?
7. stability comes from patchiness



14. The process of succession and the stability of a climax community can change over time.

A.The changes that occur in an ecosystem from the pioneer to the climax community can be seen in one human generation.

B.A high degree of species diversity does not always result in a stable ecosystem.

C.The level of resilience in a plant community contributes to its long-term stability.

D.Ecologists agree that climax communities are the most stable types of ecosystems.

E.Disagreements over the meaning of the term “stability” make it difficult to identify the most stable ecosystems.

F.The resilience of climax communities makes them resistant to destruction caused by humans.



14. The process of succession and the stability of a climax community can change over time.

A. The changes that occur in an ecosystem from the pioneer to the climax community can be seen in one human generation. 错，第一段

B. A high degree of species diversity does not always result in a stable ecosystem. 第五段

C. The level of resilience in a plant community contributes to its long-term stability. 第六段

D. Ecologists agree that climax communities are the most stable types of ecosystems. 错，第四段

E. Disagreements over the meaning of the term “stability” make it difficult to identify the most stable ecosystems. 第四段

F. The resilience of climax communities makes them resistant to destruction caused by humans. 错，第六段

1. 复习植物类词汇

2. 完成2篇植物类文章

阅读真经五

P60 Distribution of seaweed

P121 Plant and animal life of the Pacific islands



Thanks!

Adaptations as applied to marine algae provides one of the simplest and most attractive examples of the physiological adaptation of plants to the environmental conditions in which they live. It is almost certainly for this reason that the theory was proposed that the vertical distribution of red, brown, and green algae could be explained by their accessory photosynthetic pigments, the presence of which gives the seaweeds their characteristic colors, a concept known as chromatic adaptation. The most frequently cited evidence involving marine algae is a study by Levring(1947), in which the photosynthesis of green algae was shown to decrease with depth in coastal waters more rapidly than the underwater irradiance. The concept of chromatic adaptation was proposed in 1887 and was adapted for about 100 years, until it was realized that such zonation did not necessarily occur and that the distribution of seaweeds depended more on herbivory(the consumption of plant material), competition, varying concentration of the specialized pigments, and the ability of seaweeds to alter their forms of growth. Indeed, some recent evidence would seem to support the hypothesis of chromatic adaptation because the depth record(295 meters, or 973 feet) for seaweeds is held by a yet undescribed species of red algae from the Bahamas. However, the green algae *Rhipiliopsis profunda* is close behind this record at 268 meters(884 feet).

添加理由： 与The evolutionary origin of plants 第一段话题相似，补充植物起源进化背景知识，串讲学科词汇



阅读真经5 Test3 passage3 Paragraph 5 (page63-64) Distribution of Seaweed

Temperature determines the performance of seaweeds, and indeed all organisms, at the fundamental levels of enzymatic processes and metabolic function. The greatest diversity of algal species is in tropical waters. Theoretically, increased warmth should fuel the growth of seaweeds as evidenced by seasonal dead zones that form at the mouths of many rivers worldwide when the plants bloom, die and, while decaying, suck up all the available oxygen in the seawater. But temperature is not usually a limiting factor for algae that live in tropical and subtropical seas, although temperatures in intertidal areas (those areas between high and low tides) may become too warm and contribute to seasonal mass mortality of many seaweeds and the animal they shelter. Some research found that increasing temperatures, although initially enhancing the growth of phytoplankton, also allowed increased grazing by zooplankton (microscopic animals) and bacteria. "As temperature rises, the zooplankton start to grow faster than the phytoplankton", O'Connor explains. "The zooplankton are more abundant and fast-growing, and are able to eat all the phytoplankton in warmer water. This creates a bottleneck in the food chain that could have large implications for the ocean's food web."

添加理由：串讲学科词汇