IGCSE Coasts Practice Test (Sample)

Study Guide

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Questions

1. During a high-energy storm, which type of waves predominately affect the coastline?

A. Constructive waves

B. Destructive waves

C. Wind waves

D. Rogue waves

2. What is the primary aim of coastal management?

A. To promote fishing practices

B. To manage rivers that flow into the sea

C. To protect, conserve, and sustainably develop coastal areas while addressing erosion

D. To expand urban areas along the coast

3. What does hydraulic action involve in coastal erosion?

A. The collision of rocks and pebbles

B. The force of water against the coast that compresses air in cracks

C. The gradual wear of rock surfaces by sand particles

D. The dissolution of soluble materials by seawater

4. What term describes a shallow body of water separated from a larger body of water by barrier islands or reefs?

A. Estuary

B. Lagoon

C. Basin

D. Bay

5. What is the term for the low area between two waves?

A. Valley

B. Tube

C. Trough

D. Depression

6. What does "coastal zoning" refer to?

A. A method of measuring wave heights

B. A planning process to designate areas for different uses

C. A technique for managing marine species

D. A way to control coastal weather

7. What is beach nourishment?

A. A method of reducing pollution in coastal areas

B. The process of removing sand from a beach

C. Adding sand or shingle to a beach to replenish it

D. A technique used to create new coastal land by building

8. Which process describes the gradual change in species composition in coastal areas over time?

A. Erosion

B. Weathering

C. Ecological succession

D. Coastal migration

9. What describes the gathering of bottom sediments carried out underwater in shallow areas?

A. Dredging

B. Excavation

C. Harvesting

D. Mining

10. Which coastal feature is primarily characterized by its ability to absorb storm surges?

A. Rocks

B. Dunes

C. Mangroves

D. Concrete jetties

Answers

1. B
2. C
3. B
4. B
5. C
6. B
7. C
8. C
9. A
10. C

Explanations

1. During a high-energy storm, which type of waves predominately affect the coastline?

A. Constructive waves

B. Destructive waves

C. Wind waves

D. Rogue waves

Destructive waves are the correct answer because they are characterized by their high energy, which is often generated during intense storm conditions. These waves typically have a steep profile and are more powerful, leading to significant erosive action on the coastline. Their force contributes to various coastal processes, including the removal of materials from beaches and cliffs. In contrast, constructive waves are gentler and have lower energy, primarily contributing to the building up of beaches rather than eroding them. Wind waves are generally smaller, formed by local winds rather than the strong, sustained winds associated with storms, and rogue waves, while potentially very powerful, are infrequent and not specifically tied to the regular coastline impact seen during a storm. Thus, the predominance of destructive waves during a high-energy storm illustrates their role in shaping and reshaping coastlines under such dynamic conditions.

2. What is the primary aim of coastal management?

A. To promote fishing practices

B. To manage rivers that flow into the sea

C. To protect, conserve, and sustainably develop coastal areas while addressing erosion

D. To expand urban areas along the coast

The primary aim of coastal management is to protect, conserve, and sustainably develop coastal areas while addressing issues such as erosion. Coastal environments are vital as they serve numerous functions, including providing habitats for wildlife, supporting human activities such as tourism and fishing, and acting as natural buffers against storms and rising sea levels. Sustainable development in this context means ensuring that activities such as construction, tourism, and resource extraction do not compromise the health of coastal ecosystems. By focusing on erosion management, coastal management strategies aim to counteract the loss of land and infrastructure caused by natural processes and human activities. This approach often includes implementing measures like beach nourishment, the construction of seawalls, and the restoration of natural habitats such as mangroves and wetlands. Such initiatives not only protect coastal communities from damage but also enhance the overall resilience of the coastal environment. In contrast, promoting fishing practices, managing rivers, or expanding urban areas do not capture the comprehensive goals of coastal management, which prioritize the protection and sustainable use of coastal resources. These other options may form part of broader coastal management initiatives but do not represent its primary aim.

3. What does hydraulic action involve in coastal erosion?

A. The collision of rocks and pebbles

B. The force of water against the coast that compresses air in cracks

C. The gradual wear of rock surfaces by sand particles

D. The dissolution of soluble materials by seawater

Hydraulic action is a significant process in coastal erosion that involves the force of water exerting pressure against the coastline. When waves crash against rocks and cliffs, they create a powerful force that can compress air trapped in any cracks or fissures on the surface. This rapid increase in pressure can lead to the cracks widening and eventually breaking the rock apart. This process distinguishes hydraulic action from other forms of erosion. For example, options such as the collision of rocks and pebbles pertain more to abrasion, while the gradual wear by sand particle movement involves a different mechanism. Additionally, the dissolution refers to chemical weathering rather than physical erosion. Thus, the correct answer highlights the unique physical force at play in hydraulic action specifically.

4. What term describes a shallow body of water separated from a larger body of water by barrier islands or reefs?

A. Estuary

B. Lagoon

C. Basin

D. Bay

The term that describes a shallow body of water that is separated from a larger body of water by barrier islands or reefs is a lagoon. Lagoons typically form along coastlines and are characterized by their calm, shallow waters, which can support diverse ecosystems. This geographical formation can be found in various locations around the world, often serving important ecological functions and providing habitats for marine life. The presence of barrier islands or reefs helps protect the lagoon from the stronger waves and currents of the larger ocean, allowing a unique environment to develop. In contrast, an estuary is a partially enclosed coastal area where freshwater from rivers meets and mixes with saltwater from the ocean, while a basin refers more generally to a low-lying area that can collect water. A bay, on the other hand, is an area of water that is partially enclosed by land but is larger and deeper than a lagoon, generally opening directly to the ocean. Understanding these distinctions clarifies why lagoon is the appropriate term for a shallow body of water enclosed by barriers.

5. What is the term for the low area between two waves?

A. Valley

B. Tube

C. Trough

D. Depression

The term for the low area between two waves is "trough." In the context of ocean waves, the trough refers specifically to the lowest point of the wave cycle, where the water level dips down between the two peaks (crests) of the waves. Identifying the trough is essential for understanding wave behavior, as it is one of the key features that define wave characteristics such as wave height and frequency. The other terms presented do not accurately describe this specific feature of waves. A "valley" typically refers to a low area on land, not a characteristic of wave formation. A "tube" often refers to formations that can occur in waves, such as when a wave breaks and creates a cylindrical shape, but it does not indicate the area between two waves. A "depression," while it may imply a low area, does not have a specific application in wave terminology like the term "trough" does. Thus, using "trough" is the precise and correct way to describe the low point between the two waves.

6. What does "coastal zoning" refer to?

A. A method of measuring wave heights

B. A planning process to designate areas for different uses

C. A technique for managing marine species

D. A way to control coastal weather

Coastal zoning refers to a planning process that designates specific areas of the coast for different types of uses, such as residential, commercial, recreational, or conservation activities. This approach is important for sustainable management of coastal resources, helping to balance ecological needs with human activities. By clearly defining zones, authorities can minimize conflicts between different land uses, protect sensitive habitats, and ensure that development is appropriate for the environmental context. For example, areas designated for conservation may restrict activities that could harm habitats, while other zones might allow for urban development or tourism. The other options do not accurately describe coastal zoning. Measuring wave heights pertains to marine monitoring and does not involve land use planning. Managing marine species focuses on conservation and fishing regulations, which falls outside the scope of zoning. Controlling coastal weather implies an ability to affect atmospheric conditions, which is not feasible through zoning practices.

7. What is beach nourishment?

A. A method of reducing pollution in coastal areas

B. The process of removing sand from a beach

C. Adding sand or shingle to a beach to replenish it

D. A technique used to create new coastal land by building

Beach nourishment refers to the process of adding sand or shingle to a beach to replenish it. This method is typically employed to combat erosion, enhance the beach's width, and restore its natural aesthetics. By introducing new material to the beach, it helps protect coastal properties and habitats from the destructive effects of wave action and sea-level rise. This practice is vital for maintaining the ecological balance of coastal zones, as it not only supports recreational activities but also provides a buffer against storm surges. The replenished sand can act as a barrier, helping to absorb wave energy and mitigate the impacts of erosion. Beach nourishment is commonly seen in tourist areas to maintain attractive shorelines, ensuring they remain viable for both wildlife and human use.

8. Which process describes the gradual change in species composition in coastal areas over time?

A. Erosion

B. Weathering

C. Ecological succession

D. Coastal migration

The process that describes the gradual change in species composition in coastal areas over time is ecological succession. This is a natural, ongoing process where one community of organisms gradually replaces another over time, often following a disturbance or the creation of new habitats. In coastal environments, this could involve changes initiated by factors such as sea level rise, sediment deposition, or human activity. During succession, organisms like plants and animals establish themselves and modify the environment, enabling different species to thrive in a more developed ecosystem, ultimately leading to increased biodiversity. Other processes mentioned, such as erosion and weathering, refer to the physical and chemical breakdown of rocks and soils and are not directly related to the changes in species composition. Coastal migration refers to the movement of landforms or ecosystems along the coast but does not focus on the transformation of species over time. Thus, ecological succession is the most accurate term for the gradual change in species composition in coastal areas.

9. What describes the gathering of bottom sediments carried out underwater in shallow areas?

A. Dredging

B. Excavation

C. Harvesting

D. Mining

The gathering of bottom sediments underwater in shallow areas is best described as dredging. Dredging involves the removal of material from the bottom of bodies of water, such as rivers, lakes, and coastal areas. This process is usually done to maintain or deepen navigation channels, remove debris or contaminants, or gather construction materials like sand and gravel. Dredging specifically targets sediments on the seabed or riverbed, making it an essential activity for various maritime operations and coastal management. This technique is distinguished from other processes, such as excavation, which typically refers to the broader act of digging and removing earth or soil, often on land rather than underwater. Harvesting and mining, while they involve the collection of resources, do not specifically pertain to sediments in aquatic environments in the same context as dredging does.

10. Which coastal feature is primarily characterized by its ability to absorb storm surges?

A. Rocks

B. Dunes

C. Mangroves

D. Concrete jetties

The ability to absorb storm surges is primarily associated with mangroves, which are a type of coastal vegetation found in tropical and subtropical regions. Mangroves have unique adaptations that allow them to thrive in saline environments and unstable substrates. Their root systems are extensive and complex, providing both stabilization to the shoreline and a natural barrier against powerful waves and storm surges. During storm events, the dense network of mangrove roots helps to dissipate wave energy and reduce the impact of flooding in coastal areas. Additionally, the elevated land created by mangrove systems can provide further protection to inland areas from rising water levels. By absorbing and slowing down the energy of incoming water, mangroves significantly mitigate the effects of storms, safeguarding both the coastal ecosystem and human infrastructure. Other coastal features like rocks, dunes, and concrete jetties also serve various functions in coastal protection, but they do not provide the same level of natural absorption and mitigation against storm surges as mangroves do. Rocks can act as barriers but do not absorb energy in the same way. Dunes can help reduce flooding, but their effectiveness is limited compared to the deep, resistant roots of mangroves. Concrete jetties are hard structures designed to manage water flow and protect