

# a-level exam questions & answers: coastal systems & landscapes (section b) >

**4-mark assorted questions (AO1)**

now improved!



References:

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This document is available both as a pdf and editable word document – from the [coasts](#) topic page - which can be printed.

1) Explain the concept of the sediment cell.

Coastal Systems & Landscapes >> 3.1.3.2 Systems & Processes

I'm an A-Level past paper question!



[4 marks]

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2) Deduce the differences between constructive & destructive wave forms...

Coastal Systems & Landscapes >> 3.1.3.2 Systems & Processes

[4 marks]

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3) Outline the processes which lead to the development of barrier beaches..

Coastal Systems & Landscapes >> 3.1.3.2 Systems & Processes & 3.1.3.3 Landforms Of Coastal Deposition



[4 marks]

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4) Explain the development of saltmarsh environments.

Coastal Systems & Landscapes >> 3.1.3.3 Coastal Landform Development



[4 marks]

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5) Outline the features of a dalmatian coastline.

Coastal Systems & Landscapes >> 3.1.3.3 Coastlines Of Emergence & Submergence

[4 marks]

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6) Describe ways in which sand dune ecosystems may be managed and protected by humans.

Coastal Systems & Landscapes >> 3.1.3.4 Coastal Management

[4 marks]

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7) Explain differences between landforms of emergence and submergence.

Coastal Systems & Landscapes >> 3.1.3.3 Landforms Of Coastal Development

[4 marks]

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## writing tips & tricks:

These questions are answered purely on **AO1** – meaning demonstrating knowledge and understanding of places, environments, concepts, processes, interactions, and change, at a variety of scales.

In recent years, the A-Level specification has changed from having 4 X 1-mark multiple choice questions to a single 4-mark answer. The key to answering these is being very **concise** and **accurate** when writing. Make and if necessary, elaborate on your points in the answer – either four distinct points, or two and explain them in more detail.

THINK! Can I see four marks in my answer? Is there enough content?

**Remember to use the question command word – what is it asking?** If describe, say what you know. If explain, focus on how something is occurring. If outline, break down key points from the subtopic etc...

*Welp I can't remember anythinggg... Never fear - our geog. portal online topic checklist tests are here 😊*

^^ click me or scan me for more info!

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# a-level exam questions & answers:



## coastal systems & landscapes (section b) >

mark scheme | 4-mark assorted questions (AO1)



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Q.:	Sp. Ref.:	Information For Markers:	B'down:	Marks:
1)	3.1.3.2 	<p><b>Explain the concept of the sediment cell.</b></p> <p><b>Point marked</b> Allow (1) mark for each valid point with additional marks for developed points (d).</p> <p><b>Notes for answers</b></p> <ul style="list-style-type: none"> <li>• A sediment cell is a closed system usually bounded by headlands or a change in longshore drift (1).</li> <li>• Within a sediment cell, there is erosion, transport and deposition of sediment within a long-term cycle (1).</li> <li>• The only inputs into the sediment come from erosion from the seabed or land (1).</li> <li>• There is little or no movement of sediment between cells (1).</li> <li>• Human activity such as beach management can interrupt the natural system creating imbalance within the cell leaving some areas at risk of erosion (1).</li> </ul>	AO1= 4	4
2)	3.1.3.2	<p><b>Deduce the differences between constructive &amp; destructive wave forms...</b></p> <p><b>Point marked</b> Allow (1) mark for each valid point with additional marks for developed points (d).</p> <p><b>Notes for answers</b></p> <ul style="list-style-type: none"> <li>• Both wave types depend on certain factors, such as fetch (how far the wave has travelled), strength and duration of wind (1)</li> <li>• <u>Constructive</u> waves 'build up' a beach (or similar – e.g. deposit material) (1) – low wave height (d), and stronger swash than backwash (d) – longer wavelength (d).</li> <li>• <u>Destructive</u> waves erode / remove sediment from a beach (1) – higher and deeper (d) with a stronger backwash than swash (d) – lower wavelength / closer together (than constructive waves) (d)</li> </ul> <p>Allow additional credit if necessary for statements such as 'they occur due to different coastal energies – in a low energy environment constructive waves would be more common and vice versa...' (1) For a full four marks, <b>at least two</b> developed points (d) for each constructive and destructive, can be reduced to only one developed point for at least one provided an additional statement such as for point one is mentioned.</p>		

3)	3.1.3.2/3 	<p><b>Outline the processes which lead to the development of barrier beaches.</b></p> <p><b>Point marked</b>          Allow (1) mark for each valid point with additional marks for developed points (d).</p> <p><b>Notes for answers</b></p> <ul style="list-style-type: none"> <li>• A barrier beach is a transportation and depositional landform usually formed as an extension to a spit (1). Longshore drift moves sediment along the coastline until there is a change in the coastline (1). A spit develops, usually in a bay and once the spit develops across the whole bay, a barrier beach forms (d).</li> <li>• Barrier beaches are unlikely to form in estuaries as the outcoming force of freshwater will always keep part of the estuary clear (1).</li> <li>• Colonisation by vegetation can stabilise the barrier beach and trap further sediment keeping the barrier beach above sea even at high tide (1).</li> <li>• Depending upon the climate the landward side may be colonised by mangroves in the still lagoon, which adds further stability (1).</li> </ul>		
4)	3.1.3.3 	<p><b>Explain the development of saltmarsh environments.</b></p> <p><b>Point marked</b>          Allow (1) mark for each valid point with additional marks for developed points (d).</p> <p><b>Notes for answers</b></p> <ul style="list-style-type: none"> <li>• Salt marshes tend to develop in sheltered estuaries behind spits (1). As the spit develops, the area behind it becomes sheltered (d).</li> <li>• Silt is deposited by the river which gradually builds up to form an intertidal mud flat (1). The mud flat continues to build and rise above sea level with the addition of further silt (1).</li> <li>• Vegetation which is highly adapted to environment colonises the mud which itself traps further sediment (1).</li> <li>• The salt marsh environment is colonised by <u>halophytic vegetation</u> (1).</li> </ul> <p>The notes for answers are not exhaustive. Credit any valid points including rates of change or growth e.g., most are growing at between 2 and 10 mm/yr. (1) OR they are particularly fragile environments and vulnerable to anthropogenic activity and small ecosystem fluxes. (1)</p>		

5)	3.1.3.3	<p><b>Outline the features of a dalmatian coastline.</b></p> <p><b>Point marked</b> Allow (1) mark for each valid point with additional marks for developed points (d).</p> <p><b>Notes for answers</b></p> <ul style="list-style-type: none"> <li>• Dalmatian coastlines are (unique) landforms of coastal submergence / sea level rise / eustatic change (1) – they are named after the Croatian Adriatic dalmatian coastline. (d)</li> <li>• They were formed by changes to the volume of water in oceans, where fold hills and hence valleys lie parallel to one another / concordantly along a coastline. (1)</li> <li>• When these valleys are flooded, the tops remain above sea level / the surface of the water (1) and appear as a series of long, thin islands (1) running parallel to the coastline (for hundreds of kilometres (1) separated by narrow sea channels called sounds. (d)</li> </ul>		
6)	3.1.3.4	<p><b>Describe ways in which sand dune ecosystems may be protected and managed by humans.</b></p> <p><b>Point marked</b> Allow (1) mark for each valid point with additional marks for developed points (d).</p> <p><b>Notes for answers</b></p> <ul style="list-style-type: none"> <li>• Sand dune ecosystems are some of the most vulnerable to coastal processes and are particularly difficult to manage sustainably. (1)</li> <li>• <u>Dune Stabilisation</u> involves planting (perennial) grasses and vegetation whose roots fix sand dunes in place. (1)</li> <li>• <u>Dune Fencing</u> can serve to keep people and animals away thus protecting the environment. (1) There exist also specific sand trap fences and barriers which are slightly different in preventing sand from being blow out of the dune by wind. (d)</li> <li>• Likewise, <u>Boardwalks/Duckboards</u> protect the sand dunes by encouraging specific paths for people and animals to follow, which are carefully routed to minimise disturbance to the ecosystem. (1)</li> <li>• <u>Dune Thatching</u> acts as a low wind barrier to protect the fore dunes. (1)</li> </ul> <p>The notes for answers are not exhaustive. Candidates are likely to mention specifics learnt from class for example ‘marram grass’, ‘sand couchgrass’ or ‘sea lyme grass’ (d) may be mentioned and may all receive a developed point if their role is correctly explained.</p>		

7)	3.1.3.3	<p><b>Explain differences between landforms of emergence and submergence.</b></p> <p><b>Point marked</b> Allow (1) mark for each valid point with additional marks for developed points (d).</p> <p><b>Notes for answers</b></p> <ul style="list-style-type: none"> <li>• <u>Submergent coastlines</u> are stretches along the coast that have been inundated by the sea by a relative rise in sea levels from either isostasy or eustasy. They are the opposite of <u>emergent coastlines</u>, which have experienced a relative fall in sea levels / postglacial adjustment. (1)</li> </ul> <p>Common features of emergent coastlines include:</p> <ul style="list-style-type: none"> <li>• <u>Raised beaches/marine terraces</u> above the shoreline which are not reachable by the waters, sometimes tidally. (1)</li> <li>• <u>Marine platforms</u> are essentially wave cut platforms which are permanently resting above the surface of the ocean. (1)</li> </ul> <p>Common features of submergent coastlines include:</p> <ul style="list-style-type: none"> <li>• <u>Rias</u> – a type of estuarine coastline marked by a drowned river valley inundated by the sea. (1)</li> <li>• <u>Fjords</u> – (similar to rias) but involve flooded glacial valleys (1) – usually having a steep, straight ‘u shaped profile.’ (d)</li> <li>• <u>Dalmatian Coastlines</u> – long narrow island chain of drown coastal valleys (separated by narrow channels called ‘sounds.’) (1)</li> </ul> <p>For full marks, at least two features of emergent and submergent coastlines mentioned, which can be reduced to one in either with an appropriate introductory statement as above. Simple references to specific examples do not gain extra credit in this question as it focuses on explaining differences.</p>		
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