a-level exam questions & answers:

hazards (section c) >

4-mark assorted questions (AO1)

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References:

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This document is available both as a pdf and editable word document – from the hazards topic page - which can be printed.

1) Outline the different physical categories of natural hazards.
Hazards >> 3.1.5.1 >> Nature, forms, and potential impacts of natural hazards

[4 marks]

2) Briefly highlight important aspects of the makeup of Earth's inner structure.
Hazards >> 3.1.5.2 Plate Tectonics >> Earth's structure & internal energy sources

[4 marks]

3) Explain the concept of slab pull in relation to plate movement.

I'm an A-Level past paper question! AQA

Hazards >> 3.1.5.2 Plate Tectonics

[4 marks]

4) Outline the process of liquefaction.

AQA

Hazards >> 3.1.5.4 Seismic Hazards

[4 marks]

Questions follow on the next page…

5) Explain what is meant by the term ‘coastal storm surge.’
Hazards >> 3.1.5.5 Storm Hazards

[4 marks]

6) Comment on different causes of wildfire events, both of natural and human agency.
Water & Carbon Cycles >> 3.1.5.6 Wildfires

[4 marks]

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…

V1.3, last updated 19.6.21

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mark scheme | 4-mark assorted questions (AO1)

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Q.:	Sp. Ref.:	Information For Markers:	B'down:	Marks:
1)	3.1.5.1	**Outline the different physical categories of natural hazards** **Point marked** Allow (1) mark for each valid point with additional marks for developed points (d). **Notes for answers** • There are three categories of natural hazards as per the A-Level specification (geophysical, atmospheric, hydrological) (1) • [Geophysical] hazards involve geological / or geomorphological processes (1) – examples include earthquakes, volcanoes, landslides (d) • [Atmospheric] hazards involve processes acting in our atmosphere / or climactic processes (1) – examples include tropical storms/hurricanes/typhoons/cyclones (credit any), tornadoes or drought events. (d) • [Hydrological] hazards involve <u>water</u> processes (1) – examples include flash floods and avalanches. (d) Only responses that cover all three processes should be considered sufficient for full marks, with examples included in at least two categories, if in enough detail. Ideally all three will be fully developed. Allow any valid examples not included here.	AO1= 4	4
2)	3.1.5.2	**Briefly highlight important aspects of the makeup of Earth's inner structure** **Point marked** Allow (1) mark for each valid point with additional marks for developed points (d). **Notes for answers** • Earth's internal structure is composed of six / 6 layers each of varying thickness and viscosity (1) – the crust, lithosphere, asthenosphere, (upper and lower) mantle, outer core and inner core. (1) • The crust is thin and rigid (1) – averaging around 30km in depth (from 5km beneath the oceans to 100km under large mountain ranges) (d) • The mantle is a dense, hot layer of semi-solid rock (approx. 3000km thick) (1) – it can be split into the upper mantle and lower mantle. (d) • The upper mantle itself contains two layers (the lithosphere and asthenosphere (1.)		

		• The asthenosphere is semi-molten, whilst the lithosphere is rigid (and 'floats' atop this.) (d) • At the centre lies the core (inner / outer) (1) – this is the densest part of earth. (d) • The outer core is liquid (1) due to pressure exerted from above, whilst the inner core is solid (and around 1,250km thick) (1.) There are many marks available for candidates. The key is to be concise and accurate, either briefly describing all the layers or going into detail about at least two being required for full marks. Allow any valid information or geographical terminology not included here.		
3)	3.1.5.2 AQA	**Explain the concept of slab pull in relation to plate movement** **Point marked** Allow (1) mark for each valid point with additional marks for developed points (d). **Notes for answers** • Slab pull is associated with <u>destructive</u> / <u>convergent</u> plate margins (1) / where one plate is being subducted under another. (1) • The subducting plate is typically denser and less buoyant than the opposing plate so is forced to sink / subduct (1) • … With gravity acting on the leading edge of the plate (1) helping to 'pull' the rest of the plate with it (d) Allow max 1 x (d) for support with data regarding rates of plate movement involving slab pull – e.g. 2-8cm per year. Additional knowledge such as this being one of two processes associated with ridge push / slab pull plate tectonics theory (1) / usually oceanic-continental plate (1) / explains the formation of geographical features such as fold mountains and oceanic trenches (1) also gains one mark maximum.		
4)	3.1. 5.4 AQA	**Outline the process of liquefaction** **Point marked** Allow (1) mark for each valid point with additional marks for developed points (d). **Notes for answers** • Liquefaction occurs when vibrations (or water pressure) within a mass of soil cause the soil particles to lose contact with one another (1) for example from a seismic event (d.) • This occurs primarily in water-logged / saturated (unconsolidated) soil. (1) • Consequentially, the soil behaves like a liquid (d), and has an inability to support its own weight, (1) collapsing anything resting atop it (d.) • On a slope, this results in downward movement of soil. (1)		

		Credit any additional valid information such as examples or quantities. Note that many points need to be present for a development mark (d) to be allowed.		
5)	3.1.5.5	**Explain what is meant by the term 'coastal storm surge.'** **Point marked** Allow (1) mark for each valid point with additional marks for developed points (d). **Notes for answers** • A (coastal) storm surge / storm flood / tidal surge / storm tide is a (temporary) rise in sea level occurring during tropical storms / hurricanes / cyclones / typhoons (1) • The storms produce strong winds (1), which combined with the low-pressure environment, cause uplift (d), thus 'pushing' water onto the shore. (d) • This can often act to overcome flood barriers / levees (such as in the 2005 Hurricane Katrina disaster) leaving devastation for km inland (1), until energy dissipated. (d) Candidates can also be awarded max 1x (1) for reference to a case study or example of this event in action. Above is referenced Hurricane Katrina which impacted New Orleans in 2005. This knowledge could include: the 9m high storm surge / covered millions of hectares / up to 10km inland / destroyed over 80% of flood levees… (1)		
6)	3.1.5.6	**Comment on different causes of wildfire events, both of natural and human agency.** **Point marked** Allow (1) mark for each valid point with additional marks for developed points (d). **Notes for answers** • A wildfire / bushfire (AUS) / wildland fire / brushfire (USA) / rural fire is an unplanned, uncontrolled land fire. (1) • [Natural] causes can include lightning (the most frequent physical cause) (1), spontaneous heating (1) (where leaves and branches on the ground area heated to the point they catch fire without a spark) (d) or volcanic eruptions (1) (producing lava / ash - can start a fire) (d) • [Human] causes can include arson (deliberate fires started) (1), electricity shortages / damage to infrastructure (1), BBQs and campfires (not extinguished), sparks from machinery (1), cigarettes (most common) (1) or slash and burn deforestation techniques. (1) Credit any valid additional examples not included here. Max 3 marks if only natural or human is considered. Both aspects must be focused on in order to obtain the full marks available, either through one or two developed examples or three to four causes depending on whether the introduction mark was gained.		