

Candidate Marks Report

Series : 6 2018

This candidate's script has been assessed using On-Screen Marking. The marks are therefore not shown on the script itself, but are summarised in the table below.

Centre No :	Assessment Code :	H481
Candidate No :	Component Code :	03
Candidate Name :		

Total Marks :

In the table below 'Total Mark' records the mark scored by this candidate.
'Max Mark' records the Maximum Mark available for the question.

Question Part

3	a	① The estimations were not made in the same years / at the same time
		② The areas of oceans are very varied, i.e. Antarctic region is much larger than 'Off western Africa'
		③ The names of some areas are very basic & people will not know the size of the area used in the estimate. 'Off Western Greenland' is very vague.
3	b	Nutrients in the oceans are the foundations of earth's ecosystem. There are many variations in the nutrient levels and types at different parts of the ocean.
		Near the surface of the oceans nutrient levels are relatively low in comparison to deeper waters. As organisms decompose, their nutrients slowly sink to the bottom of the oceans. This is called 'marine snow' which are high amounts of nutrients nearer the deeper depths of the oceans. The supply of these nutrients is dependent on the rate of decomposition of matter in the shallower waters. This can vary, one factor is the amount of warmth in the oceans, which increases rates of decomposition.



Question Part

Nutrient supplies to the oceans can also be found near the surface, in the 'photic' layer. These are waters that are deep enough to allow the sun's energy to be captured by organisms such as phytoplankton, that grow and reproduce by using the sun's energy for photosynthesis. This development of microscopic organisms help produce a sustainable food chain. Allowing these nutrients to be passed along, i.e. to herring, then to seals. ~~Areas with~~

- 5 a
- ① There is no explanation of how the people died. For example, were the deaths due to a tsunami or buildings collapsing.
 - ② Not ^{many} social impacts listed, as in, no mention of what the quakes did to those who didn't lose their lives.
 - ③ ~~No indication of what was done to reduce the impacts experienced by humans, i.e. modifying vulnerability.~~
 - ③ See additional booklet.

5 b Explosive volcanoes are most commonly found at convergent plate boundaries, such as Mount Merapi in Indonesia,



Question Part

where the Eurasian plate meets the Indo-Australian Plate. Explosive and effusive volcanoes erupt in very different ways from the type of material ejected, to the shape of the landscape as a result of the eruption.

Stratovolcanoes are commonly the source of explosive volcanoes. These eruptions are deemed as explosive due to the rising magma from the lithosphere (being viscous) blocking up the vents in the volcano. Over time, pressure increases and suddenly a large eruption, ejecting viscous lava explodes due to high amounts of pressure. The lava is viscous, meaning it is slow moving, which is why these volcanoes build up to a cone like shape.

Explosive eruptions pose a greater threat to humans than effusive eruptions. Due to a large increase in pressure, the material erupted is faster moving and ~~the~~ Pyroclastic flows are fast moving 'clouds' moving down the side of the volcano, consisting of lava, boulders and ash, they destroy almost anything in their path. Another type of material



Question Part

that an explosive eruption can cause is lahars. Lahars are a warm, concrete like, fast moving result of an eruption. Containing boulders & ash, they also destroy almost anything in their path.

8 Ocean processes can influence the carbon cycle in a number of significant ways, which affect the climate that humans live in.

One way in which oceans influence the carbon cycle is by the absorption of carbon. In the last 250 years, oceans have absorbed roughly 30-40% of man ~~made~~ released carbon. Making oceans a very significant carbon store. This influences the carbon cycle by removing the amount of carbon in the biosphere. As a result, this will reduce the amount of solar radiation being locked into earth's atmosphere, thus reducing the rate at which global warming occurs.

Another way in which ocean processes influence the carbon cycle is by the way in ~~which~~ oceans are one of the largest stores of fossil fuels.



Question Part

Minerals in the ocean are heavily contested for, especially when valuable resources like oil or gas can be mined. For example, in the Arctic, the USA & Russia are contesting heavily for the oil stores of up to 9 billion barrels. Oil is a source of carbon, and if this natural resource was to be exploited & used, vast amounts of carbon would be diffused into the atmosphere, putting strain on ocean processes and ecosystems. Such as coral reefs that are facing widespread disruption as a result of ocean acidification due to large amounts of carbon being diffused into the seas.

10 Tectonic hazards impact global migration significantly. Many reasons for migration is due to people becoming refugees as a result of tectonic hazards.

Tectonic hazards impact global migration ~~because~~ due to the negative effects that are especially apparent in LIDCs. Tectonic hazards can destroy a persons life leaving many with virtually



nothing. For example, the 2010 earthquake in Haiti caused 229,000 deaths and 287,000 injuries. As a result of poor building regulations 1.9 million lost their homes and became refugees. With only 40% of people in shelters having a roof over their heads, it is no surprise why many decided to migrate. As a result of the 2010, January earthquake, many Haitians fled to Brazil. As a result of the earthquake millions were forced to migrate.

Another way in which tectonic hazards impact global migration is by mass movement of people who want to migrate in fear of what the tectonic hazards may inflict. For example, in ~~Deep~~ Indonesia, $\frac{3}{4}$ of its population live within 100km of an active volcano. Although many cannot migrate due to economic reasons, those who do may leave with the intent to avoid the potential dangers of tectonic hazards, such as pyroclastic flows & lahars.

Tectonic hazards may also impact global migration due to the threat of ash clouds,



Question Part

causing the potential of international airports to temporarily shut down due to risks of damaging the planes engine. Aviation is one of the main routes for people in ACR or EDCs to migrate.

Overall tectonic hazards can impact global migration in a variety of ways from a delay in flights to the forced migration of millions.

great barrier reef
deep water horizon

15

In the last 250 years, oceanic pollution has been increasing in a linear way. There are many factors that contribute to increases in oceanic pollution but the primary contributor for the increase in oceanic pollution is due to economic reasons.

One of the main contributors to oceanic pollution is when an event releasing pure pollutants occur. In 2010, in the Gulf of Mexico, a BP oil rig malfunctioned, causing 89 days of constant oil being spilled onto the ocean floor, adding up to 8.9 billion gallons to be released into the



Question Part

Oceans. Oil mining is an ~~direct~~ economic activity that has proven to be detrimental to the oceans. As a result of the oil spill, oceanic pollutant levels rose significantly. As a result of the oil spill, ~~many~~ the level of oceanic pollution is increased. Deep water horizon lead to many marine ecosystems being impacted, with large areas ~~off the~~ surrounding the area, being coral, the oil settled, destroying many habitats & even a whole ecosystem.

Another economic ~~activity~~ factor that accounts for rising levels of oceanic pollution is by global shipping releasing pollutants into the ocean. Shipping of goods is one of the main methods in transporting goods, with the majority of the ocean going ships using fossil fuels, they emit large amounts of pollutants into the oceans. One example of where this is apparent is on the east coast of Australia. Major shipping routes are to be constructed, resulting in the degradation of coral reef ecosystems in the Great Barrier reef. Being home to 25% of marine biomass and containing



Question Part

10% of global fish. The Great Barrier Reef is the largest living thing on earth. The economic factors, resulting in an increase in oceanic pollution can prove to be harmful to humans. Such as, coral reefs act as a natural coastal defence in reducing wave energy. It is estimated that coral reefs save humans \$10 billion a year. In industry, many tonnes of carbon are released into the atmosphere each day. With oceanic waters absorbing 30-40% of ~~man made carbon~~ carbon produced by ~~man~~ human ~~and~~ ocean acidification is proving to be very harmful to coral ecosystems. In the last 10 years, the number of endangered coral has increased from 2 to 22, including Staghorn.

As seen in figure 1, if there is a trend in the increase in uptake of CO_2 and temperature to a decrease in pH. In the next 50 years, oceanic acidity could

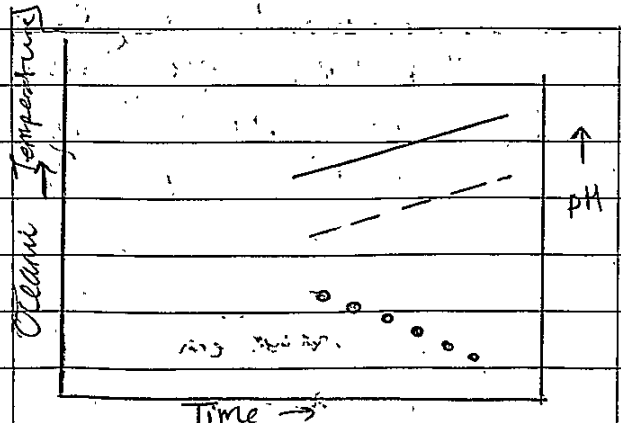


Figure 1
 ——— = temperature change
 - - - - = pH change
 = absorbed carbon dioxide



Question Part

~~rise~~ from 8 fall from ~~8.2 to~~ 8.2 to 7.8 pH. This would have a negative impact on coral as acidic conditions reduce corals ability to carbonate thus preventing them from ~~re~~ reproducing. Global shipping and emissions of CO₂ contribute significantly to an increase in oceanic pollution * (see additional booklet)

Overall, economic factors are the main cause of rising levels of oceanic pollution. From events like Deep Water Horizon ~~to~~ which releases a pollutant directly into the ocean, to the emission of CO₂ in industry, being absorbed by oceans, degrading marine life, potentially harming the way in which humans interact with oceans, from a loss in employment & income potentially putting the 1.2 billion who are dependent on oceans at risk.

20 plan

For

- land use zones
- hazard mapping
- cross planning
- education
- counter weights

Against

- no real way to predict
 - sometimes nature overcomes preparation
- Case studies:
- Japan - AC -
 - ~~India~~ - LIDC - Indonesia



Question Part

20

Earthquakes pose many potential hazards that could impact human life. There are a variety of ways in which mitigation can be carried out to reduce/manage hazards arising from earthquakes. However, the extent to which the hazards are managed is often down to the economic capabilities, and the understanding of ~~various~~ potential hazards caused by earthquakes.

One way in which it is possible to manage hazards arising from earthquakes is by modifying the vulnerability of a place that is susceptible to hazards. ~~For one way in which~~ This can be done is through building regulations and construction. This could ~~also~~ include deep foundations on land that is prone to liquefaction, reducing the chance of buildings collapsing, harming many. Another method is by placing counter weights on top of a tall building, preventing it from swaying too much when it experiences ~~primary~~ an earthquake's ground vibration. An example where this is apparent on many buildings is in ~~Japan~~ Tokyo, Japan. Also in a Police station in



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Unit code	H	4	8	1	/	0	3
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Write here how many booklets you have used in total	2
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4 PAGE CONTINUATION BOOKLET

Write the information required clearly in the boxes above using capital letters.

Question Part

20	Wellington, New Zealand that has been constructed with a cross bracing design, to absorb the energy of vibration. // Another way in which the event is modified is through education programs. This can help to reduce the impact on human life by allowing people to have an understanding of what to do in the event of an earthquake. In Indonesia, there is a national earthquake awareness day, which teaches its population what to do in the event of an earthquake. It is also 'recommended' by the national government to have a 'ready-to-go bag', ensuring a quick and easy departure from places where a risk to human life. for the
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This document consists of 4 pages

OCR4



Question Part

~~One~~
 One way in which it is possible to manage hazards arising from earthquakes is through the modification of law. In Japan, there are organisations set up especially for the event of an earthquake, along with great communication between all the departments, the loss as a result of a hazard can be reduced significantly. Due to Japan being an AC, its main aim in the result of a tectonic event is to return things to normality as quickly as possible. In the 2011 earthquake off the coast of Japan, ~~the~~ with a magnitude of 9.9, 16,000 people died with a further 12,000 being injured. But despite the magnitude and destruction caused by the earthquake, Japan as a country managed to recover well. Along with the financial capabilities, it was possible to manage hazards arising from ~~earth~~ the earthquake.

However, it is ^{somewhat} dependant on the financial ~~capabilties~~ capabilities of a country in managing ~~reducing~~ the hazards arising from earthquakes. Countries that are more economically developed generally have a greater capability to manage the hazards.



Question Part

arising from earthquakes. In ~~the~~ ~~LIDC~~
 the LIDC Haiti, a 7.8 magnitude
 earthquake struck in 2010, killing
 220,000. There was very little
 modification of vulnerability. For example,
 the vast majority of buildings didn't
 comply to standard building regulations,
 leading to the ~~poor~~ ~~poor~~ ~~effect~~
 sandwich effect occurring, leading to
 thousands of deaths. Along with this,
 the ports in Haiti's capital, Port Au
 Prince were destroyed, causing a
 significant delay to the influx of aid.
 Haiti became dependent on aid,
 with the US supplying equipment to
 help clear away debris. However,
 a year later, only 5% of debris was
 cleared, indicating that there ~~was~~ ~~still~~
~~not enough~~ ~~was~~ still not enough done in
 the aftermath of the event.

In conclusion, it is possible to manage
 potential hazards arising from earthquakes,
 however, it is dependent on the country's
 government in its ~~its~~ willingness to modify
 vulnerability and loss prior to the event. With
 earthquakes being ~~also~~ very unpredictable,
 populations must aim to reduce the
 impacts before they occur. One example



Question Part

of where this has been successful ~~in~~
 in Japan, whereby only a small fraction
~~that~~ that deaths, in comparison to the
 smaller size earthquake in Haiti.

5 a ... ③ No magnitude given to the Sechuan
 earthquake, meaning you can't get a
 sense of how magnitude correlates to
 the death toll. (it is given for Nepal's
 earthquake).

15 * ... As one of the most reputable geographers
 in the world stated, David Attenborough
 states "Coral reefs as we know them
 could be extinct by the end of the
 century."

