

GCE

Geography

Unit 1 Physical and Human Geography (GEOG1)
Exemplar Script 4

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1 Rivers, Floods and Management**1 (a)** Describe different types of load a river carries.

(4 marks)

Candidates Answer

The river can carry its load through transportation the greater the velocity the greater the amount of load it can carry. The river can carry different types of load, varying from large to small particles. Large particles such as boulders and cobbles can be transported by the river at high velocity.

These particles are the first to be deposited as they are the heaviest. Whereas particles such as clay and silt can be suspended in the water almost until the water is stagnant because they are so light. The river load varies in size.

Recognises size of load only rather than type – no numeric qualification so 1 mark plus a second mark for suspension.

1 (b) Study figure 1 which shows the Hjulstrom curve**1 (b)(i)** State the velocity of which particles of clay of 0.001 mm are eroded and the Velocity at which pebbles of 10 mm are deposited.

(2 marks)

Candidates Answer

Clay particles of 0.001 are eroded at400... **cm/sec**

Pebbles of 10 mm are deposited at 0.1**cm/sec**...

Only the answer for clay is correct

1 (b)(ii) Describe the relationship between velocity, load size and transportation.

(3 marks)

Candidates Answer

The higher the velocity, the larger the load size can be transported as more energy is required to transport larger loads (eg 1000 particle size (mm)) reaching 300cm/sec in order to be transported compared to 0.001 particle size only needing 0.1 ((Cm/Sec) to be transported.

Recognises basic link and then supports with evidence of boulders and accurate speed and similarly for 0.001 size. 3 marks

- 1 (c) Study Figure 2 which is an extract from a newspaper article about flooding in Cornwall, in November 2010

Using Figure 2, describe and comment on the different impacts of flooding
(6 marks)

Candidates Answer

Flooding occurs when the soil reaches saturation point and can't contain any more water, or furthermore when river discharge is too high and the winter bursts the river banks. There can be social, political and economic impacts. Firstly social, people who are affected by flooding may experience their homes being flooded (figure 2) which can lead to people living in shelters on the streets or in refugee centres until they can get back their homes to what it was.

Secondly economical, people can experience financial losses (cars left floating in main square Figure 2) for some this could be their only transport for getting to work and back, furthermore (businesses were flooded – figure 2). Showing that floods can take on negative impact on businesses. Lastly, political impact, as they may blame local MP's for not making sure the flood defences and management were not better.

Definition at the start is not needed here. Aware of social and economic impacts and uses evidence from Figure 2, although at times ideas are overstated e.g. living in shelters on the streets. There is comment at the end that is clear and impacts are categorised. Level 2 5 marks.

- 1 (d) Describe how and explain why fluvial (river) landforms change downstream

(15 marks)

Candidates Answer

Plan:

Upstream = waterfalls/rapids

Middle = potholes

Middle/downstream = meanders

Fluvial landforms change as you go downstream. The long profile of a river has a large effect on these landforms created as a change in gradient can change the velocity of the water and thus have a different erosive power.

(Recognises overall reason for change but not linked to landforms)

The different landforms are waterfalls and rapids created in the upper course of the river. Potholes created in the middle/ course and meanders created in the middle/lower course of the river. These are all created because of changes within the transportation, deposition and erosive power of the river.

(Landforms and processes generally noted but potholes upper course really)

In the upper course of the river, there is a lot of vertical erosion due to the potential energy as the water course of the river is on a steep gradient. This vertical erosion can cause landforms such as waterfalls to occur due to the vertical erosion through abrasion and attrition of softer rock. Waterfalls would not occur downstream due to little potential energy now to much kinetic energy.

(Considers explanation of waterfalls in upper course but points not in sequence)

In the middle course of the river potential energy starts to turn to kinetic energy meaning the velocity increases – this can have different effects on the river as more velocity = more erosive power. This is partly why potholes are found in the middle course of the river because as velocity increases turbulent waters arise, meaning that localised rivers could arise and drill into rock using pebbles to erode the rock by abrasion. This leaves small rounded holes in the bottom of the river.

Explanation valid but upper course not middle course landform- some description also here

Downstream velocity is at its largest due to there being an increase in the hydraulic radius (cross section area divided by wetted perimeter). Meanders can occur here where there are pools at regular intervals. Lastly at the mouth, deposition is at its highest which can create braided channels as the river is unable to take its normal path due to too much alluvium.

Reference to valid landforms further downstream – some explanation linked to processes.

To conclude the key aspects why conditions change as you go downstream is because of a change in gradient, cross section area, erosive power, and velocity

There is some attempt to consider why landforms change downstream and underlying reasons. There is a limited amount on how they change and reasons are generally landform specific and partial.

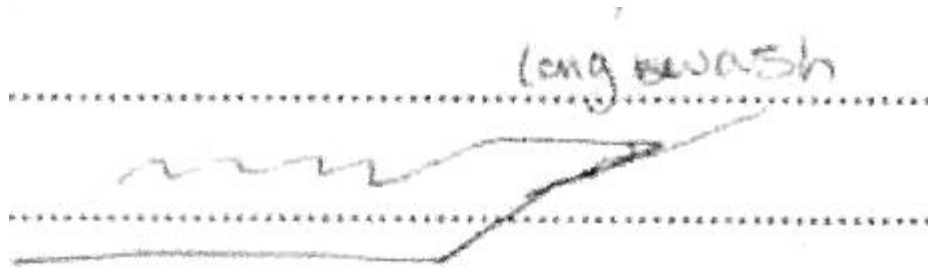
L2 10 marks

3 Coastal Environments**3 (a)** Distinguish between constructive waves and destructive waves

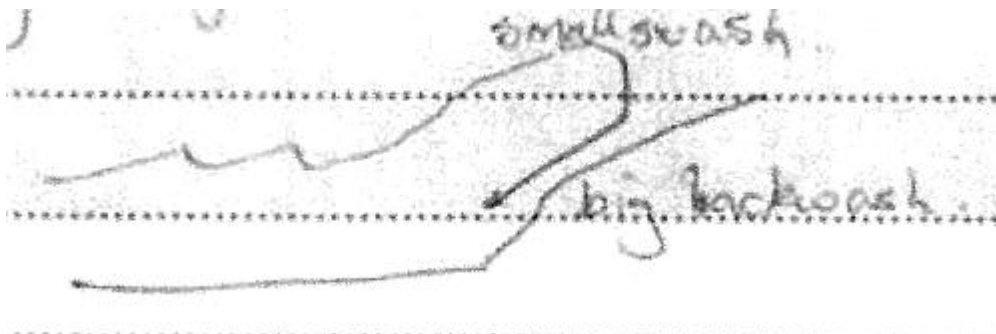
(4 marks)

Candidates Answer

Constructive waves are a form of wave with a relatively low frequency. This type has a much larger swash (so will move up this beach more) and a smaller backwash.



Destructive waves are more frequent form of water, that have a very small swash, but a very large backwash.



Differences in frequency and swash/backwash noted 2 marks

3(b) Study Figure 4 which shows coastal erosion in Happisburgh, Norfolk.

3 (b)(i) Using **Figure 4 only**, describe evidence that this coast is being eroded (4 marks)

Candidates Answer

We can see clearly that this coast is being eroded. The gardens of the houses have been half cut off and the cliff line is becoming closer and closer to the buildings. Miniature headland and bays are being formed due to alternating hard and soft rock, with soft being eroded quicker. Defences have been used to try and stop erosion ie riprap and wooden groynes. There is a pipe showing close to the canura man which would have originally have been buried in the ground.

The gardens are validly noted as evidence, as are the presence of sea defences and the pipe. 3 marks.

3 (b)(ii) Use one case study to describe the socio-economic consequence of coastal erosion (7 marks)

Candidates Answer

There are a few main consequences of coastal erosion. The case study I will use is Holderness. Social problems which include property prices are decreasing due to people not wanting to live in this area which inevitably causes a lot of stress for owners.

30 villages have been lost in this area since the Roman Times. People are becoming more and more worried as this coastline retreats to 1.8m a year. They are having to move things such as caravans inland as they are afraid they get to close. Economic problems include a visitor number decrease so tourism is having troubling times, with a number of caravan parks at risk of collapsing, which brings a large income for this part of the area. A gas terminal at Easington is at risk which , could be disastrous as lots of money has been invested 80,000m² of quality farmland is at risk. Which gives jobs and earns money.

Social impact of stress is noted and loss of villages – somewhat historically. Economic impact regarding tourism – example is appropriate – not all info is accurate and points could link together better. L2 5 marks

3 (c) Soft engineering works in harmony with the natural environment and is effective in protecting the coast.

To what extent do you agree with this view?

(15 marks)

Candidates Answer

I believe it really depends on the situation given. The engineering used if any, is case specific. Soft engineering is a cheap option of protection used due to its vast inexpense and its great sustainability.

Possible conclusion given at start?

Examples include Beach nourishment which as the addition of sand and shingle which helps to create a wider beach and so erosion is decreased. This is a simple and cost effective way of helping to reduce erosion without spending an extremely large amount of money on hard engineering ideas such as rock groynes or riprap.

Beach nourishment – description

Soft Engineering is really just small additions to what is already in place to help reduce factors such as erosion. For example, by adding vegetation to a beach and reducing its gradient, you will be able to make the beach wider and build it all together by a method called stabilisation.

No ugly or expensive pieces of equipment need to be added, which are pricey to maintain and sustain.

In the Blackwater Estuary they believed that through soft engineering, they could help reduce the risk of erosion. With a rate of loss of 2m per year this was a very important issue. Tollensbury Fleet had coastal realignment occur to it and they also removed the sea wall due to its expensive restoration needed. This caused the farmland to become marsh which didn't matter as it wasn't worth much. (stabilised by adding brushwood).

Managed retreat

To repair the sea wall, it was going to cost £600,000 but the farmland it was protecting was worth £600,000. However the marsh created was longer lasting and much more cost effective and more sustainable. It also increased the number of animal habitats which increased tourism which helps now to boost the economy of the area. I agree totally with the statement but there are other methods available that can be more effective dependant on the situation.

Descriptive emphasis with tentative view Drifts from foci of working in harmony and effective protection. L2 8 marks

5 Population Change**5 (a)** Study **Figure 6** which shows the population structure of four countries

Outline contrasts in population structure shown in Figure 6

(3 marks)

Candidates Answer

Both LEDCs (Kenya and India) have youthful populations with a high percentage of juveniles (<15) and a low percentage of elderly (>65).

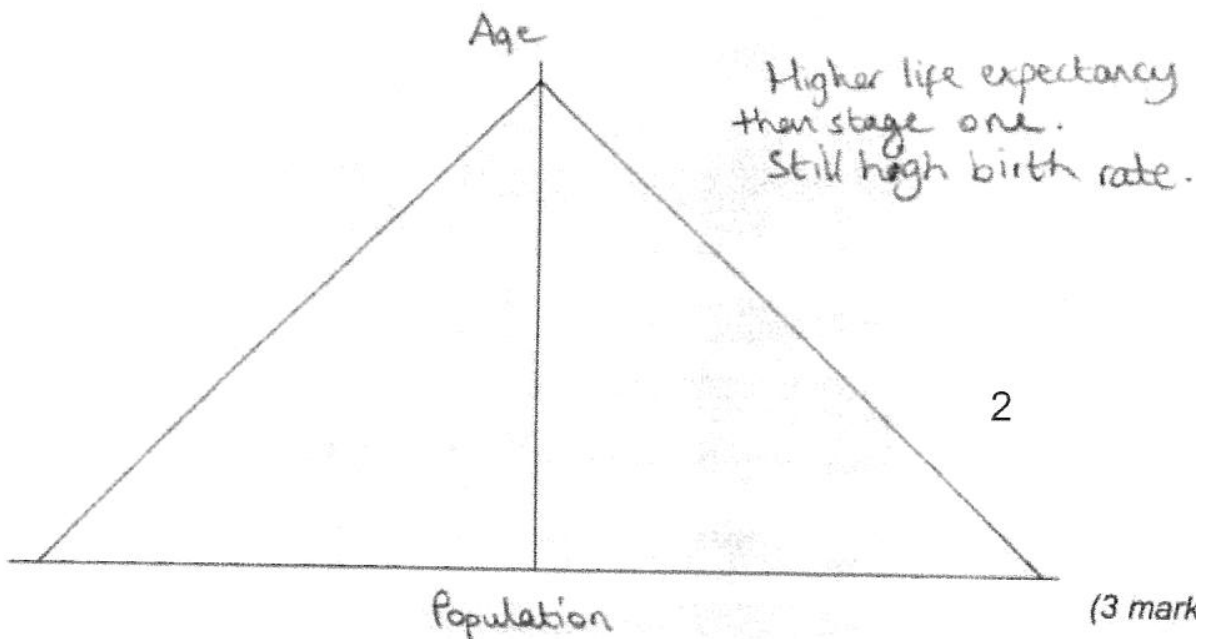
The MEDSs (UK and Germany) have a more balanced structure with a higher percentage of elderly than juveniles, so an ageing population. However, all four countries have the majority of the population aged 15-65, between 55-66%.

Mainly looks at similarities – basic point of youthful and ageing difference within statements 1 mark

5 (b)(i) Population structure changes throughout the stages of the demographic transition model.

Draw a sketch population pyramid to show the population structure of a country in stage 2 of the demographic transition model

(3 marks)



Has symmetrical triangle and broad base 2 marks

5 (b)(ii) Figure 7 shows a population pyramid for people ages up to 85 in England and Wales in 2010.

The England and Wales population pyramid displayed the characteristics of country in stage 4 until 2001, but the evidence of this stage is less clear in 2010.

Provide evidence from Figure 7 for this statement

(3 marks)

Candidates Answer

Birth rate had decreased but then began to increase again. As the populations are fluctuating, this is what happens in stage 5 of the DTM, birth rate and death rate fluctuate to give a stable or slowly declining total population.

No reference to population structure information in Figure 7 0 marks

5(c) Discuss the implications of an ageing population

(6 marks)

Candidates Answer

Because more people are reaching retirement age, the state pension is not enough to cover them. This means that taxes of the working population are likely to increase. Also, dependency ratios will increase as more elderly people are reliant on the working population. The political parties of an area with an ageing population also have to change their tactics to appeal to the increased demand for hospitals, homes nurses and carers etc. As the population of youth in an ageing population is particularly low, the demand for education decreases so schools may shut down. Also, as there are more elderly dependants, there may not be enough youth to join the working population. To solve this and because the state pension is too low it is very likely that retirement age will increase.

Offers some support and discusses implications Level 2 5 marks

5(d)

Discuss the usefulness of at least two population measures (such as birth rate, death rate, fertility rate, infant mortality rate, life expectancy, migration rate and population density) as indicators of development.

(15 marks)

Candidates Answer***Pop measure 1***

Migration rate is a very useful indicator of development because it will tell you if people are immigrating (entering the country) or emigrating (leaving the country). If there are lots of people immigrating to the country, this suggests that the standard of living and quality of life here is ideal, meaning that levels of development are high and there are lots of pull 'factors', for example, good healthcare and education, jobs etc. If the migration rate shows people are emigrating, it suggests that there are lots of 'push factors' so people want to move away because of low development. However, people may be migrating because they are seeking refuge to get away from a war and are desperate for somewhere to go, eg civil war in Rwanda.

Clear discussion linked to usefulness which is then questioned.

Pop measure 2

A second useful measure is infant mortality rate, because if lots of children are dying at a very young age, it suggests that healthcare in the country is very poor and that there is lots of disease.

A low infant mortality rate suggests a very developed healthcare system that can cope.

Pop measure 3

Another useful measure is birth rate, because a high birth rate indicates a lack of contraception, or education, or that people want to have large families to work or make up for the loss of previous children/possible future loss due to diseases/HIV/AIDS etc, which is more apparent in less developed countries, a low birth rate indicates a highly developed country because the need to have a large family is not too apparent, there is easy access to contraception, and also career prospects sabotage having a family so many people put it off for later years, also because children are expensive to raise.

***Clear discussion linked to usefulness and different levels of development
Level 3 14 marks***

6 Food Supply Issues

6 (a) **Figure 8** shows percentage change in food production per capita, between 1960-1981 and 1960 – 2001

Summarise trends shown in **Figure 8**

(4 marks)

Candidates Answer

Globally there was an increase in food production by 14%. Massive increases were seen in Asia and South America. However Africa had a drop by 4% which suggests it is having to import even more food. Asia had the biggest increase which was a massive 59%. More than double.

Recognises global trend and that in Asia and South America with contrast in Africa and evidence quoted in support. 4 marks

6 (b)(i) **Figure 9** shows the top five global food retailers in 2009

Outline characteristics of the top five food retailers shown in **Figure 9**

(3 marks)

Candidates Answer

All the companies sales are in the millions of dollars. Head office are in MEDC countries in Europe and North America. Wall-Mart is by far the biggest retailer. Two of the companies are from Germany.

Large level of sales and head office characteristics identified 2 marks

6 (b)(ii) Suggest issues regarding the supply of food that may result from these Characteristics

(3 marks)

Candidates Answer

They are TNC's and so they will grow and buy food from all over the world, meaning they become more powerful and this could affect trade. The food is also more likely to end up in MEDC's as people cannot afford to pay a high price.

Recognises power of TNC's and their impact on price 2 marks

6 (b)(iii) Figure 10 is a statement by Tesco, a transitional corporation (TNC), of some of its policies on food production.

With the help of Figure 10 comment on the positive role that TNCs may have in food production.

(5 marks)

Candidates answer

They are able to invest and employ experts, who know best about the way to remain sustainable. They are able to invest in the long term which can only benefit food production. They have codes of practice so that the quality of food production is constant. They are independently checked, which helps the surveys and checks, more reliable and unbiased. MEDC's demand better animal rights so this suggests animals are appropriately raised. They have the power to make sure other countries abide by British Laws. This could benefit poorer countries.

Describes role – from resource provided Level 1 3 marks

6 (c) Assess the success of high technology strategies (such as the green revolution and genetic modification) to increase food supply.

(15 marks)

Candidates Answer

High technology strategies have not only increased food supply but efficiency and value they can be grown. For example the use of greenhouses have allowed tomatoes to be grown in the UK. This can reduce CO2 emissions but also enhance the product, so in larger quantities is produced as they are able to send it away from pests. Tractors have improved excessively, with the use of GPS to further increase efficiency in planting, by maximising space which allows a bigger crop yield in each field. This has reduced emissions as well.

High technology – greenhouses and tractors with GPS not most appropriate

The green revolution was the saving grace for India. It managed to lift them out of a food crisis and by 2000 they were exporting rice. The IR8 rice crop that was genetically modified increased yields 50% in some areas. It was resistant to pesticides and so required less pesticides. Infrastructure improved. The issues however with the Green Revolution. Investment was needed and some farmers could not afford it and were pushed off the land causing rapid urbanisation in India.

Considers advantages and disadvantages of Green Revolution –begins to discuss

High imports were needed and water was needed because of the scale of farming. Now though experts are seeing a change in water levels and farmers are having to dig deeper for water. The deeper they go the saltier the water and this isn't good for the crops. The biodiversity in the Punjab area has also dropped and this is scaring experts as this means soil nutrition is reducing and this could spell disaster. worked brilliantly but now people are beginning to question for how much longer and calling for a second Green revolution.

Comes to a view that could be more measured. Level 2 10 marks