

CHAPTER 1**Short response**

- 1 Input = precipitation/solar energy
Output = evaporation/transpiration
- 2 Fertile soil regularly replenished by flooding; level ground easily cultivated
- 3 Discharge/channel depth increase; load size/channel gradient decrease
- 4 This occurs where soft rock occurs downstream of a band of hard rock. The soft rock is readily eroded by the river and the band of hard rock is gradually exposed as the lip and face of the waterfall.

Longer response

- 5 In four different ways: traction (rolling along the river bed), saltation (bouncing along the river bed), suspension (light material carried along by the river flow) and solution (dissolved in river water).
- 6 Their main use is to show how a river's discharge varies over time, and in response to periods of rainfall and drought. In your answer, explain what this data could be used for when local governments are assessing the activity of a river to make decisions about the future use of engineering strategies.
- 7 The main sources are likely to be: sewage from housing; factory discharges (spills and effluents); hot water from power stations; farm chemicals and pesticides.
- 8 Hard engineering involves constructing such things as flood walls, sluice gates and flood relief channels. Soft engineering involves working more with nature by ensuring that flood plains are kept clear of settlement and so are able to accommodate flood water. For this answer you will need to explain a number of advantages and disadvantages of these techniques for a number of soft- and hard-engineering approaches, with the use of comparative words like 'however', 'on the other hand' and 'whereas'. For example, flood walls are a hard-engineering strategy that can be used to prevent erosional processes of hydraulic action and abrasion wearing away the banks of the channel, although this technique is expensive and can take time to install.

Exam-style practice

- 1 A
- 2 a) ponds and lakes/aquifers/ice sheets and glaciers
b) runoff/evapotranspiration/precipitation
c) hydraulic action/abrasion/solution.
- 3 All crops need plenty of water in order to grow and to be most productive. Irrigation is often used to make up what climate does not provide and to increase yields.

4 Oxbow lakes are formed by the natural development of meanders. Eventually the narrowing neck of a meander loop is broken through due to a flooding event. Over time, continued deposition of alluvium causes the old bend to be cut off, forming an oxbow lake.

5 February

6 By building on and using flood plains and so clearly increasing the chances of being flooded; by deforestation which speeds up runoff; by failing to undertake proper flood protection measures.

7 High water deficits are most noticeable over much of Africa, the Middle East, Southwest Asia and Australia. This is because these are parts of the world where desert and semi-arid climates prevail – i.e. there is little precipitation and long periods of drought. Water deficits are also heightened where the rising demand for water increasingly exceeds supply.

CHAPTER 2

Short response

1 Rate of coastal erosion/coastal landforms

2 Good = building land/food for wetland birds

Service = nursery for fish and crustaceans/protection against coastal erosion

3 By building hotels along the seafront/damage to coral reefs, mangroves and dunes

4 Fishermen/port authority/local residents/tourists

Longer response

5 Extensive beach with large area of sand exposed at low tide/strong prevailing, onshore winds.

6 The role is mainly one of smoothing out the coastline, carrying material eroded from headlands and depositing in sheltered waters such as bays. This happens by the main prevailing wind directing the wave onto the beach at an acute angle of 30°, bringing sediment within its swash. The sediment is then dragged back into the sea at a 90° with the waves' backwash, under the force of gravity. This continues to transport sediment along the beach in a zig-zag pattern.

7 Prediction can help in deciding just how much flood protection is needed and where. Early warning systems (part of prediction) can play an important part in ensuring the evacuation of coastal areas threatened by a storm surge or tsunami, for instance. This can help to reduce the potential loss of life from a flooding event. Also, the use of historical records can assist in identifying areas that are at high risk, and highlighting these zones to implement prevention strategies like planning restrictions.

8 Decide which coastal areas are most at risk and which areas most need protecting (are the most settled or valuable). Are there sections of coast that can just be left unprotected? What can be achieved by soft rather than hard engineering? So, the options are hold the line, a managed retreat or do nothing. In your answer, discuss the positives and negatives of using these three strategies to deal with the effects of global warming. Provide a concluding statement on the significance of the strategies.

Exam-style practice

1 B

2 a) Freeze–thaw action/solution

b) Slumping/rock falls

c) Abrasion – the action of the waves hurling rock fragments at the base of the cliffs, wearing them away. Hydraulic action – the sheer force of the waves pushing water into the cracks of rock, exerting pressure, and causing them to break apart over time.

3 Formed by the land rising relative to the sea. The pre-existing beach, wave-cut platform and cliffs become raised above the present sea level.

4 Roots trap and build up mud and silt into land/provide protection from storm surges and tidal waves.

5 Warm tropical waters of a certain depth.

6 For this question, you could explain two of the conflicts between different stakeholders in Lyme Bay, southern England. The main conflicts are likely to be between agriculture and urban development; port developments and tourism; fishing and shipping; conservation and development.

7 Hard-engineering approaches, involving the building of sea walls and groynes, are expensive and tend to disfigure coastal scenery. They are working against nature. Soft engineering, such as beach replenishment and cliff regrading, are much less disfiguring but require repetition over a period of years. In your answer, explain the advantages and disadvantages of a number of the engineering strategies, and then come to a final conclusion to say whether one of the approaches is more effective at managing coastal erosion.

CHAPTER 3

Short response

1 Lava flows/poisonous gas emissions

2 Community disruption/loss of housing

3 Medical help; rescue teams

4 Tropical cyclone

Longer response

5 Tsunamis occur at destructive plate margins where two tectonic plates collide because of convection currents. The denser plate is subducted, which causes the build-up of pressure as the two plates slide next to each other. The sudden release of the pressure between the two plates causes an earthquake, with epicentres under the sea. This can generate large and destructive tidal waves. As they approach the shallow water of the coast, they increase in height and destructive power.

6 For this question, you will need to use comparative phrases like 'whereas', 'on the other hand' or 'however'. The primary impacts are the destruction of buildings and transport, as well as the resulting deaths and injuries. The secondary impacts include tsunamis and the disruption of everyday life.

7 Risk assessment involves assessing a number of different things, such as the probability of a particular hazard happening, where it might happen and the number of people likely to be affected.

8 Remember to explain the three ways scientists can predict the potential of a tropical storm: tracking and forecasting which areas are likely to be most affected by a particular cyclone; collating the information supplied by networks of weather satellites and weather stations as well as by radar.

Exam-style practice

1 C

2 a) By MMS, Mercalli or Richter scales

b) Quake proofing their homes as much as possible/knowing what to do when an earthquake strikes

c) Collision

3 They are potentially less frequent hazards; therefore, people perceive the danger to be lower. Secondly, they usually give advanced warning through increased seismic activity and the release of gases, which mean an emergency action plan can be put in place.

4 They originate over oceans where the surface water is warm. This warmth causes the air above to become unstable and to spiral up. The spiral steadily gathers energy from the warm sea and intensifies to become the eye of the cyclone. The longer the cyclone tracks over the sea, the stronger and more destructive it becomes.

5 Vietnam

6 They can provide advice about further precautionary and preventative measures that might be taken as part of the recovery and reconstruction programmes. Their advice is enriched by the experiences of other countries.

7 For this question you will need to explain why each of the factors you have chosen means people still choose to live in these high-risk environments. For example, if you were to explain about tourism and the associated employment opportunities: One of the reasons why people continue to live in high-risk environments is employment opportunities. Many volcanic regions are popular tourist destinations, meaning locals can work as tour guides.

CHAPTER 4

Short response

- 1 Retailing and banking/education and entertainment
- 2 UK/Japan
- 3 Nuclear energy/biofuels
- 4 India/China/USA

Longer response

- 5 Globalisation is the increasing integration of economics, societies and cultures, brought about by global networks of trade, communication, transport, migration and political decision making.
- 6 Good accessibility; relatively cheap land allows for large premises and provision of parking space.
- 7 It is the cleanest burning of the fossil fuels; there are large reserves; more easily transported than coal or oil. The main cost is that using it still contributes to carbon dioxide emissions; current output is largely in the hands of a few countries.
- 8 In this question, you will be expected to talk about the advantages and disadvantages of using renewable energy resources like solar, wind and geothermal. The main reason is to cut the emission of GHGs and so reduce the risks of global warming and atmospheric pollution. Also, it can help make countries more energy secure.

Exam-style practice

- 1 a) C
b) A source of energy that can only be used once and cannot be replaced, for example, fossil fuels.
- 2 Primary
- 3 By making available cheap and effective contraception, therefore reducing the birth rate, as well as educating people.
- 4 a) Labour/land/transport links
b) Provide a clear explanation – one of the reasons why countries should have energy security is to create a degree of independence in their own supply of energy, so that they are not held to ransom.
- 5 Services are more profitable than manufactured goods. Services are good generators of jobs. Decline in the demand for certain manufactured goods. Manufacturing is being increasingly lost to a relatively small number of countries where labour costs are low.
- 6 Remember to use a named example, like Qatar, with specific locational detail to support your points. Demand is likely to be increased by population growth, economic development and rising living standards (households with more energy-using appliances).

7 You will need to use evidence from Figure 4.17 in your answer. For example, 'one of the reasons for the growth of informal employment is poverty, which is illustrated by Figure 4.17 where a number of African countries have a 50% and above level of informal employment'.

CHAPTER 5

Short response

- 1 Temperature and precipitation
- 2 Productivity of farming/job opportunities/availability of services
- 3 Using a farm for non-agricultural purposes – tourism, recreation and leisure; converting land to solar or wind farms; converting farm buildings into housing, offices or industrial units.
- 4 UN FAO

Longer response

- 5 Ground exposed to run-off and erosion; loss of biodiversity.
- 6 Poor transport infrastructure makes rural areas less accessible to emergency services. Less investment in preparing for hazards.
- 7 Halting the out-migration of young adults by creating local jobs and improving basic services such as education, health and entertainment. By pointing out that the grass is not necessarily greener in towns and cities.
- 8 Main stakeholders likely to be farmers, wealthy landowners, rural residents, government departments (food, farming, environment) and non-governmental agencies (conservation).

Exam-style practice

- 1 a) D
b) Rainfall/solar radiation/soil
- 2 C
- 3 The main areas of tropical rainforests are located in the equatorial regions, for example, the Amazon basin.
- 4 Employment opportunities/better services (education, healthcare, entertainment)/better housing.
- 5 Aridity of climate; deforestation; overgrazing by livestock; environmental degradation.
- 6 Likely to involve making farming more productive and diversifying rural sources of income.
- 7 Consider the costs and benefits of the changes to commercial agriculture and then provide a concluding statement at the end. Provides poor families with work and income, but not necessarily throughout the year. Former subsistence farmers have to buy their food. This can be expensive and often uses up all or most of their earnings. Land is being used to feed foreigners rather than locals.

CHAPTER 6

Short response

- 1 Inadequate supply of housing (squatter settlements) and jobs (underemployment); environmental pollution and traffic congestion.
- 2 Poverty/poor health/lack of safe water/crime
- 3 Identify the least urbanised continent in Figure 6.2 (page 168) – Africa
- 4 Urban regeneration/urban rebranding/urban reimagining

Longer response

- 5 Not having access to the basics of decent living – adequate housing, employment, education, healthcare.
- 6 Provides food and a basis for healthy living where food can be scarce and expensive. Produce might also be sold to supplement household income. Might be undertaken by women and children while men work elsewhere in the city.
- 7 Partly for the sense of security that comes from living with similar people (ethnically, socially); better protection from other groups. Also segregated by levels of income and spatial variations in the cost of housing.
- 8 Explain two examples from named locations on how living conditions can be improved in squatter settlements. Possible examples:
 - a) redevelopment of Favelas in Brazil
 - b) the self-help/site-and-service schemes in the Philippines.

Exam-style practice

- 1 a) A
b) Extent and density of buildings/reliance on non-agricultural activities
- 2 C
- 3 2006
- 4 a) Land values/accessibility
b) Volume of inward migration exceeds to the supply of housing – migrants have to improvise their own on disused land and with salvaged materials.
- 5 For this question, you will need to explain how these strategies can make urban living more sustainable:
 - a) recycling rubbish
 - b) improving energy efficiency in the home
 - c) reducing environmental pollution
 - d) providing basic physical infrastructure (water and sewage disposal).
- 6 Explain clearly the reasons why these factors would result in people choosing to live in the suburbs:
 - a) cheaper and more spacious housing
 - b) ready access to the countryside
 - c) better services
 - d) better environmental quality.
- 7 In this question you will be expected to look at both the positive and negative factors of using brownfield rather than greenfield sites. At the end of your answer give a concluding statement on your opinion based on the argument you have presented. Possible points to discuss in your answer could be:
 - a) reduces the loss of countryside
 - b) helps to revive old urban areas
 - c) basic services already in place
 - d) located near to main areas of employment.

CHAPTER 7

Short response

- 1 The degradation of land in arid and semi-arid areas resulting from various factors such as human activities and climate change.
- 2 Changes in solar radiation due to changes in the sun's eccentricity/obliquity/precession.
- 3 Good = medicinal plants/hardwood timber
Service = carbon sink/protection against soil erosion
- 4 Shifting energy supply from fossil fuel to renewable sources of energy.

Longer response

- 5 Will only affect climatic hazards. Higher temperatures mean more energy in the atmosphere. This will result in tropical cyclones becoming more frequent and powerful. For some parts of the world, the climate will become drier and severe droughts more common.
- 6 Selective logging; replanting areas that have been clear felled; encouraging agro-forestry; substitution.
- 7 Remember to clearly develop the points you make. Possible suggestions to include in your answer are:
 - a) lowers agricultural productivity
 - b) food supply is reduced, leading to more malnutrition and starvation.

All this is likely to persuade people to migrate to areas less affected by desertification. This, in turn, will lead to increased population pressure in those destination areas and the likelihood of more desertification.

- 8 The major threat is to coastal areas where so much of the world's population and economic development is concentrated, along with many of the leading cities, which could be drowned. Included in the loss would be large areas of productive farmland. These will need to be replaced, for example, by the clearance of forested land.

Exam-style practice

- 1
 - a) C
 - b) Heavy industry/thermal electricity generation
- 2
 - a) Absence of surface water/absence of vegetation/soil erosion
 - b) Australia/India/Argentina
 - c) Rising water demand from an increasing population with rising living standards.

3 One of the ways in which people are contributing towards desertification is overgrazing. This where farmers overuse the land, not allowing the soil to recover. This results in the land losing its nutrients and becoming dry and unusable. Other factors could be deforestation/over pumping of groundwater.

4 a) 28.4%

b) Heavy reliance on coal; huge populations.

5 Reduction of biodiversity; removal of trees' leaves the soil bare and exposed to erosion; flood risk increased by deposition of soil in rivers; increases carbon dioxide in the atmosphere and risk of global warming. Globally, the last is probably the most serious; locally, perhaps the first and second.

6 In this question, you will be expected to produce a balanced argument that explains in detail several reasons why countries are finding it difficult to sign international agreements. Remember to use named examples to support the points that you make. Use the key points below to help structure your answer.

a) Many are heavily reliant still on the burning of coal.

b) Industrialisation is a top priority, no matter what the environmental costs.

c) Large and rapidly growing populations add substantially to the overall energy demand, most of which is met by burning fossil fuels.

d) The move to cleaner sources of energy is lower down the list of national priorities.

CHAPTER 8

Short response

1 TNCs/UN agencies such as World Bank, World Trade Organisation or IMF.

2 Large/international operation/diversity in operations/based in developed countries

3 Rural to urban migration/retirement migration

4 Local operation/small scale/environmental awareness

Longer response

5 Large territory; strong military capability; high level of economic development; large, well-educated population/wealth of natural resources.

6 Downsizing; seeking locations that offer cheaper living/more pleasant living environment/better quality of life/peace and quiet.

7 Pressure on housing stock and services (education and healthcare); unemployment; possible tensions with existing population; creation of immigrant 'ghettoes'.

8 Cutting down on tourist miles; reducing environmental impacts; tighter controls on where new developments take place and their scale; encouraging ecotourism.

Exam-style practice

- 1 a) D
 b) Accessible rural areas/areas with milder climates especially in winter
- 2 a) EU/NAFTA
 b) For mutual benefit/easier and cheaper international trade (less paperwork, no customs charges)
 c) Creation of jobs and investment in basic infrastructure, especially transport network
- 3 To guard against unemployment and undue pressure on housing and social services. These are probably the top priorities, but might be cautious about the build-up of ethnic tensions.
- 4 a) In 2017, approx. 500 million out of global total of 1.2 billion = 42%
 b) Large volume of tourism within Europe (affluent population with paid holidays). Europe's cultural heritage a strong pull for tourists from outside Europe.
- 5 There are two principal advances – in transport and communications. As far as transport is concerned, the friction, time values and costs of distance have been substantially reduced. Faster and cheaper movement of people and goods around the world. Communications, especially via satellites and the internet, mean that international business decisions can be made much more quickly and potential migrants are better informed about overseas opportunities.
- 6 For this question, you will need to write a balanced argument that provides evidence both for and against the view that the economic benefits of tourism outweigh the environmental costs, and draw your points together in a final conclusion. Possible points to consider:
 - a) There can be no doubt that tourism is a 'good earner' in terms of generating many jobs and circulating large amounts of money in local and national economies.
 - b) At the same time, it is recognised that popular tourism of the package variety has and is doing a considerable amount of environmental damage (pollution, disturbance of ecosystems, disfigurement of fine scenery, etc.).
 - c) Some look to ecotourism to provide the answer, but the essence of ecotourism is small-scale and local. It could never cope with the huge volume of popular, package tourism.
 - d) Maybe the economic benefits outweigh the environmental costs, but they would do so less if there were tighter environmental controls on tourist developments.

CHAPTER 9

Short response

- 1 Economic/social/cultural/political
- 2 Italy/India
- 3 Age structure; sex ratio
- 4 A measure of the degree to which something is unequally distributed

Longer response

- 5 Because the demand for water is beginning to outstrip supply. This is making it into a scarce and important resource.
- 6 Development becomes focused on areas that are most favourable; they are often the areas to be developed first. They become cores and continue to prosper, often by using the resources of peripheries, i.e. areas that lag behind in development.
- 7 Consider the relative value of the different measures associated with human welfare – bringing in examples to support your points. Possible points to mention:
 - a) housing with basic facilities, good diet and access to healthcare are important to human welfare
 - b) literacy and education, which open the door to employment
 - c) adequate wages to buy material things that contribute to human welfare.
- 8 For this question, you will need to weigh up the costs and benefits of top-down approaches and come to a conclusion that summarises whether the use of top-down approaches have more costs/benefits.

Exam-style practice

- 1
 - a) D
 - b) Gross Domestic Product
- 2
 - a) The Human Development Index
 - b) Stage 3
 - c) Rapid economic development; rising living standards
- 3 The choice is likely to be the World Trade Organisation (promotion of free and fair trade), World Bank (low interest loans and technical help to reduce poverty) or International Monetary Fund (a stable system of international payments for the benefit of trade and foreign investment).
- 4
 - a) Australia/Canada/UK
 - b) Aid is in the wrong form – loans rather than technical assistance. Corrupt officials syphoning off aid in the form of capital. Possibility of becoming too dependent on aid.

5 Bottom-up schemes within developing countries, such as are supported by NGOs, can do much to improve the development situation in the poorest areas. Developed countries have a moral obligation to help close the gap. It would be unreasonable to expect them to slow down their own development. The only option for them is to provide aid in the most appropriate form and which cannot be diverted by corrupt governments. For example, when talking about the differences between South Africa's agricultural co-operatives and WaterAid projects in Kenya: 'One example of a development project is installation of hand pumps in Kenya to provide clean water for local villages, whereas in South Africa the Manyeding Agricultural Co-operative works to promote self-efficiency in producing food. Of these two strategies, the first has more to commend it.'

- 6 For this question, you will need to explain a number of different factors, which are likely to include:
- a) secure employment
 - b) age or salary levels
 - c) access to decent housing
 - d) access to education and healthcare
 - e) leisure time and available leisure time activities
 - f) environmental quality
 - g) freedom of expression and personal security.

There may be other factors, but the crucial thing is to try to assess their relative importance in terms of their impact on the quality of life.