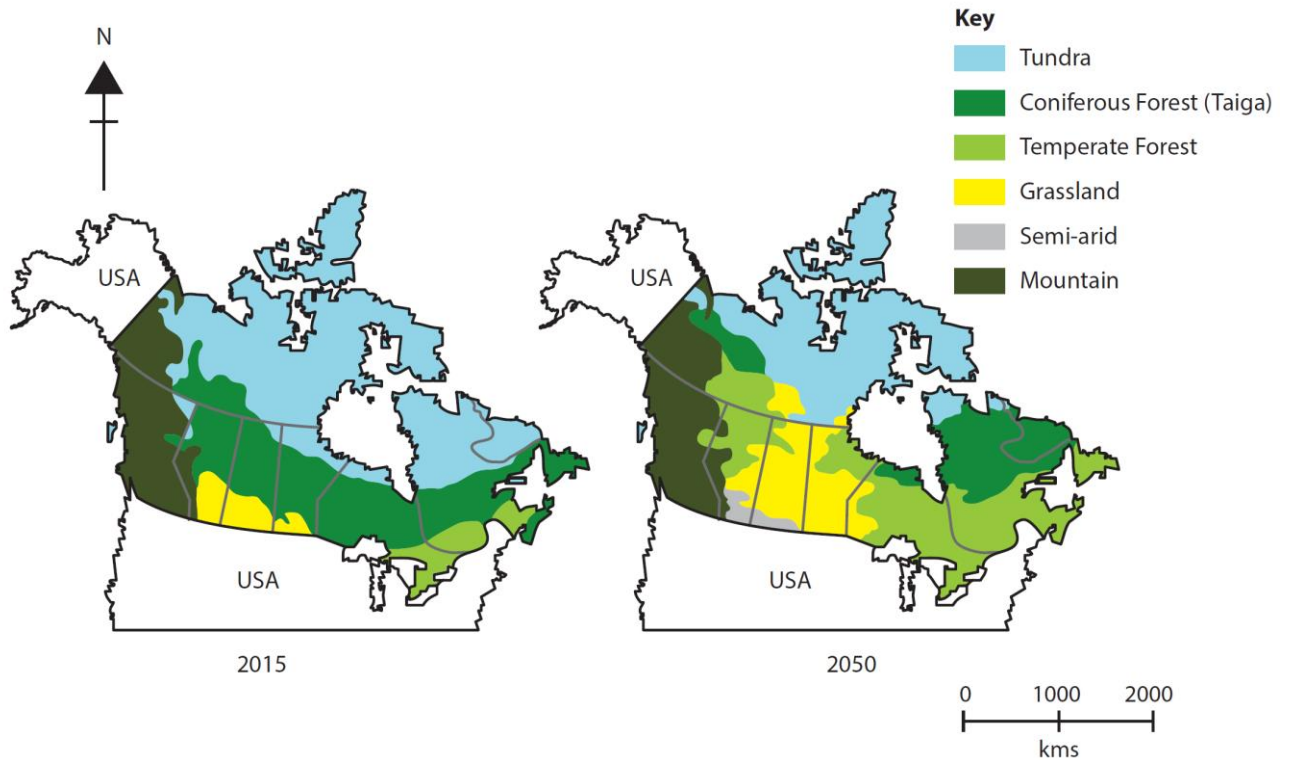


The total of all marks is 40.

TOPIC 1: BATTLE FOR THE BIOSPHERE

Study figure below. It shows the predicted impact of a change in climate on the location of Canadian biomes.



1) Which one of the following best describes the location of tundra in 2015? (max 1 mark)

- A) In the north.
- B) On the west coast.
- C) Along the border with the USA.
- D) On the east coast.

2) Which one of the following best explains the change in the area of tundra by 2050? (max 1 mark)

- A) Deforestation.
- B) Rising global temperatures.
- C) Falling sea level.
- D) Falling global temperatures.

3) Describe how the area of tundra is predicted to change by 2050. (max 2 marks)

Answer

1 mark for identifying that the area has shrunk.

Additional mark for supporting evidence/further details, eg. replaced by forest type (1) or biome has moved north (1) or attempts to estimate/quantify eg. half the size. (1)

4) Outline one way in which the biosphere maintains soil health. (max 2 marks)

Answer

1 mark for stating a role of the biosphere in maintaining soil health. Additional mark for an extending statement.

Common responses likely to include: decomposers, such as worms (1), break down organic material (1), increasing the soil's fertility (1).

Vegetation canopy 'shields' the ground from heavy rain (1) preventing soil erosion (1).

Decomposing leaves (1) add organic matter to the soil (1) providing nutrients to vegetation (1).

5) Describe one local/national and one global approach used to manage the biosphere. (max 4 marks)

Answer

1 mark for identifying a suitable approach to biosphere management. Additional mark(s) awarded for a developing statement.

Common responses likely to include: Local/National:

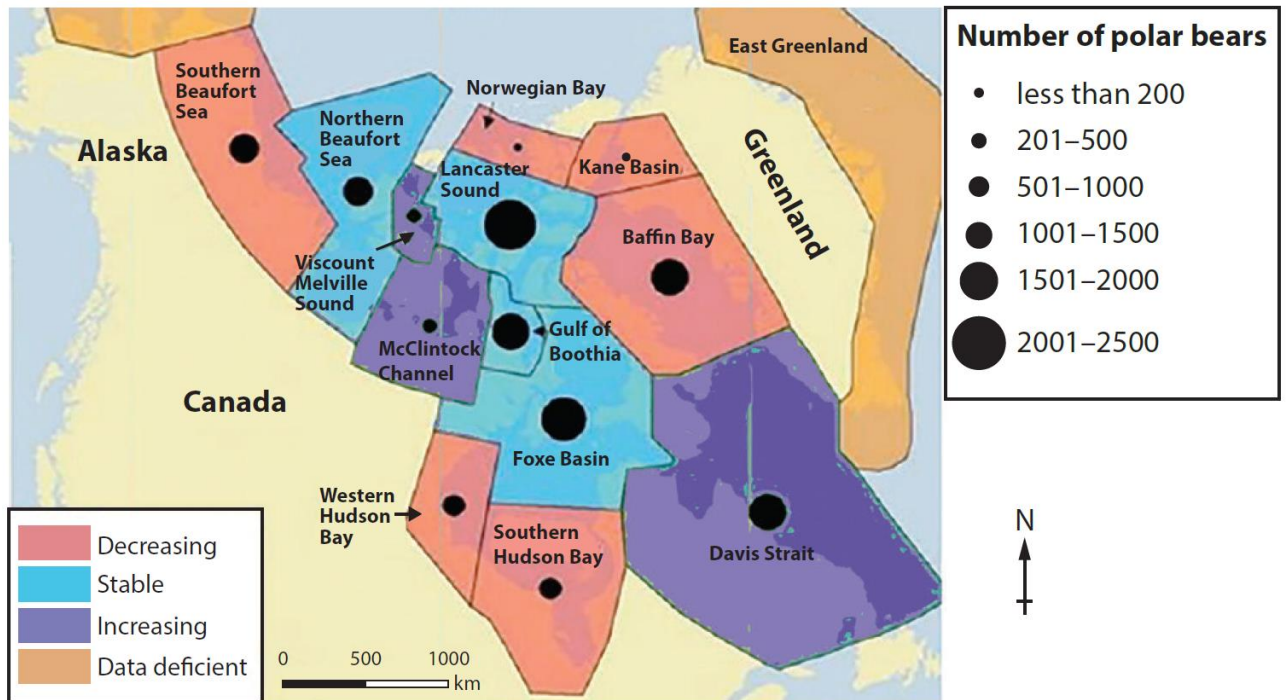
- National Parks (1) which give legal protection to important landscapes / environments (1) preventing their exploitation (1).
- Nature Reserves (1) which restrict access (1).
- BAPs - Biodiversity Action Plans (1). Location specific actions imposed to ensure habitat / wildlife survival (1).

Global:

- World Heritage Sites (1) where the UN works with local governments to manage unique environments (1).
- Trade agreements (1) such as CITES (1), where countries agreed to stop trade in endangered species (1).
- Global treaties (1), such as the Ramsar Convention (1) which protects endangered wetlands (1).

NB: Creditable comments on both local and global actions needed for full marks.

Study figure below. It shows the polar bear population in North America and Greenland.



6) Describe the pattern of the polar bear population. (max 3 marks)

Answer

Place/location specific points –

One or more area used as example/development e.g Davis Strait (1).

Data to support one or more examples (1).

Pattern –

It is uneven (1).

Greatest in north south band/core/centre idea, fewer on the periphery/edge or same point using compass points (1).

Similar picture for change – stable in centre or equivalent idea – less so on periphery (1).

If no pattern then limit to 2 marks.

7) In which one of the following regions is the polar bear population likely to disappear first? (max 1 mark)

A) Norwegian Bay

B) Gulf of Boothia

C) Viscount Melville Sound

D) Western Hudson Bay

8) State one reason why climate change would affect the numbers of polar bears. (max 1 mark)

Answer

• Melting ice isolates population (1).

- Habitat loss (1).
- Food-web changes – reduced food supply (1).

Allow any reasonable response with legitimate links to climate change.

9) For polar bears, outline two ways it has adapted to its extreme environment.
(max 3 marks)

Answer

2 marks for identifying an appropriate two ways adaptation. 1 mark for clear explanation of how this helps animal survival.

Common responses likely to include:

- Fur and fat layers (1) to provide insulation (1).
- Stores of moisture (1) to survive without regular access to water (1).
- Adapted claws, teeth and limbs (1) to access food sources (1).
- Large paws (1) to enable the animal to walk on snow or sand (1).
- Ability to hibernate (1) to miss the most extreme weather conditions (1).

10) Describe one global action which aims to protect extreme environments from the impacts of climate change. (max 2 marks)

Answer

1 mark for identifying an appropriate global action.

1 mark for description of what they/it does or tries to do.

Or

1 mark for description of what they/it does or tries to do.

1 mark for extension/added detail – e.g. impact/effectiveness.

- Kyoto Treaty (1) international agreement to reduce carbon emissions (1) which should slow down climate change (1).
- Antarctic Treaty (1) signed by all parties which claim land, agreement not to exploit the region's natural resources (1) so preserving a wilderness (1).
- Protocol on Environment Protection (1) no action to be taken until the environmental impact has been assessed (1) which may have long-term impact of slowing down damage (1).
- International Year of the Desert (1) series of global events aimed at raising the awareness of the importance of desert environments and potential future threats (1) which should help preserve fragile environments (1).
- CITES (1) prevents the trade of endangered animals, including species associated with polar and hot-arid regions (1) preserving species in the longterm (1).
- RAMSAR (1) international convention aimed at protecting wetlands, including tundra marshes (1) which should help preserve the whole food web dependent on those environments (1).
- WWF (1) is an NGO established to help protect endangered wildlife and their habitats(1) through campaigns and lobbying of politicians (1).
- Greenpeace (1) is an NGO established to protect the environment (and people) (1) through direct action, campaigns and lobbying of politicians (1).

TOPIC 2: CHALLENGES OF A RURAL AND AN URBANISING WORLD

Study figure below. It shows an isolated rural area on the Isle of Harris, Scotland.



1) Identify one possible cause of rural isolation shown on figure above. (max 1 mark)

- A) Decline in rural to urban migration.
- B) Improved broadband connectivity.
- C) Poor transport links.
- D) Increase in counter-urbanisation.

2) Which one of the following is the likely result of rural isolation? (max 1 mark)

- A) Increase in new housing.
- B) Houses left empty.
- C) More jobs available.
- D) Increase in population.

3) Outline one challenge facing the Isle of Harris as a result of rural isolation. (max 2 marks)

Answer

Outline one so expect a basic point (1) with a development through further description or explanation (1).

Basic points may include:

- Decline in (farming) employment (1) due to a falling demand for products/increased production costs (1).
- Dereliction/empty homes (1) as people have moved away from the area (1).
- Loss of local traditions/community (1) as many younger people have left the area (1).
- Rural depopulation (1) due to poor accessibility/few services (1).

- Lack/loss of services (1) as potential customers/users of this service have moved out of the area (1).

4) Define the term cash-crop farming. (max 2 marks)

Answer

A crop which is grown to be sold (1) with development (1) e.g.

- often from a developing to a developed country (1)
- crop grown purely for commercial gain (1)
- focus on growing one particular crop/specialisation (1)
- idea of how farmers try to maximise yield (1).

5) Outline one impact of increasing rural isolation on local services. (max 2 marks)

Answer

Outline one so expect a basic point (1) with extension through explanation or further description (1).

For example:

- Overall reduction in local services (1) which will have a negative effect on the local economy (1).
- Closure in local schools/shop/post office/bank – *or similar* (1) as they are no longer economically viable (1).
- Reduction in bus operations (1) making it more difficult to travel around (1).
- ‘spiral of decline’ idea (1) development of same (1).

6) Outline one way farms in the developed world can diversify. (max 2 marks)

Answer

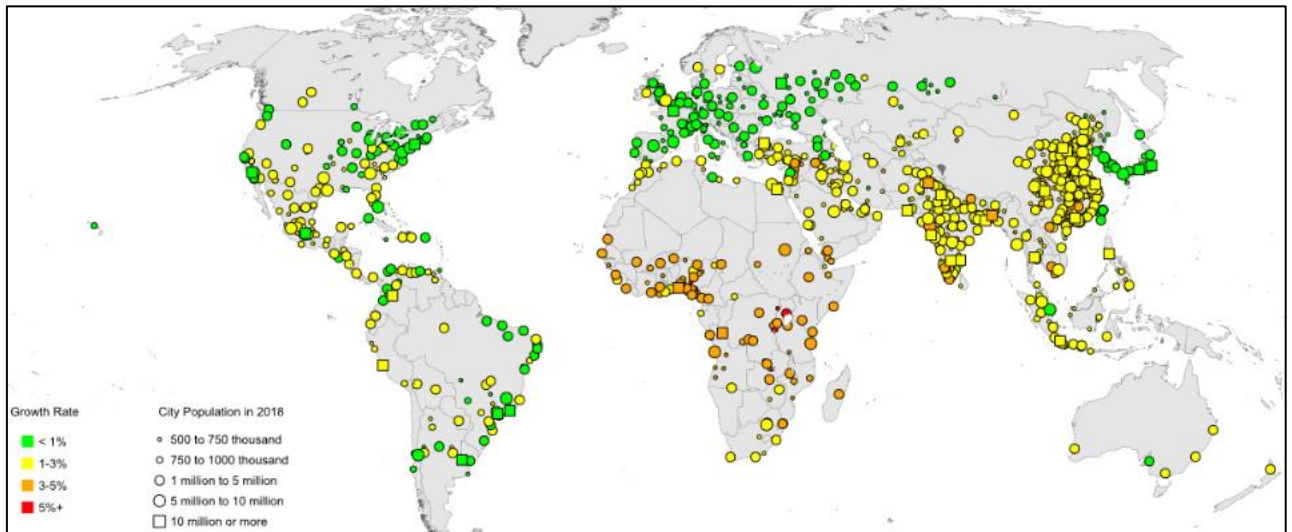
Outline one so expect a basic point (1) with extension through detailed description, exemplification or explanation (1).

Depends on the farm, but responses likely to refer to:

- Changing the type of farming (e.g. to organic) (1).
- Farm shops (1).
- Bed and breakfast (1).
- Camping/caravanning (1).
- Paintballing (1).
- Pony trekking (1).
- Cattery/livery/kennels (1).
- Mountain biking (1).

Credit any other legitimate suggestion (1) with extension (1).

Study figure below. It shows estimated growth rates of urban agglomerations by size class in 2018-2030.



7) Complete the following sentences about the changes shown on figure above. Use some of the words in the box below. (max 2 marks)

mountainous Oceania increase high
many few Africa decrease low Europe

The urban areas with the highest growth rate are mostly found in Many countries in this part of the world are described as income countries. This growth in population is caused by a high rate of natural This is also because people are migrating from rural areas.

Answer

The urban areas with the highest growth rate are mostly found in **Africa**. Many countries in this part of the world are described as **low** income countries. This growth in population is caused by a high rate of natural **increase**. This is also because **many** people are migrating from rural areas.

8) Which one of the following best describes counter-urbanisation? (max 1 mark)

A Movement of people from rural areas to cities.

B The growth of squatter settlements in rural areas.

C Movement of people from cities to rural areas.

D Increased traffic congestion in the rural areas.

9) Suggest one reason why some urban areas have high population growth rates.

(max 2 marks)

Answer

Suggest one so expect one basic point (1) and some extension through further detail or explanation (1).

For example:

- High natural increase (1) further detail or explanation, e.g. because birth rates are a lot higher than death rates (1).
- Birth rates are high/rising (1) further detail or explanation, e.g. lack of contraception (1).
- Death rates are low/falling (1) further detail or explanation, e.g. due to improvements in medical care (1).
- Rural (or urban) to urban migration (1) further detail or explanation, e.g. details of push/pull factor (1) .
- Identification of a push or pull factor (1) with development (1).

10) Outline one economic change to rural communities caused by counter-urbanisation. *(max 2 marks)*

Answer

Outline one so expect a basic point (1) with an extension either through explanation or description (1).

Change can be good or bad for the community.

For example:

- Local shops/services may close down (1) as newcomers do their shopping elsewhere (1).
- Local shops/services prosper (1) because of the increase in population of the rural area (1).
- House prices rise (1) making it difficult for local first time buyers to get on the property ladder (1).
- House prices rise (1) as the reputation of the rural area changes – i.e. to a popular commuter/retirement area (1).
- House prices fall (1) as the area becomes increasingly crowded/less attractive (1).

Study figure below. It shows a billboard of new housing on a brownfield site in Spennymoor, County Durham.



11) Which one of the following best describes a brownfield site? (max 1 mark)

- A) Countryside that has never been developed.
- B) Land which is protected from any future development.
- C) Part of a city which is only used for housing.
- D) Land that has already been developed in the past.

12) Suggest one reason why some people might be against developing brownfield sites such as the one shown in above. (max 2 marks)

Answer

Suggest one so expect a basic point (1) with an extension either through explanation or description (1).

For example:

- Development may lead to increased noise/air pollution (1) as the population of the area will increase (1).

- Development may lead to increased traffic congestion (1) as the population of the area will increase (1).
- Ground could be contaminated (1) which will take longer to develop/more expensive (1).
- Idea of planning permission needed (1).
- Cost of development may be expensive (1) as site may have to be cleaned up/infrastructure replaced (1).
- House prices may fall (1) as there is now more housing available for potential buyers (1).
- Idea of preserving industrial heritage (1).