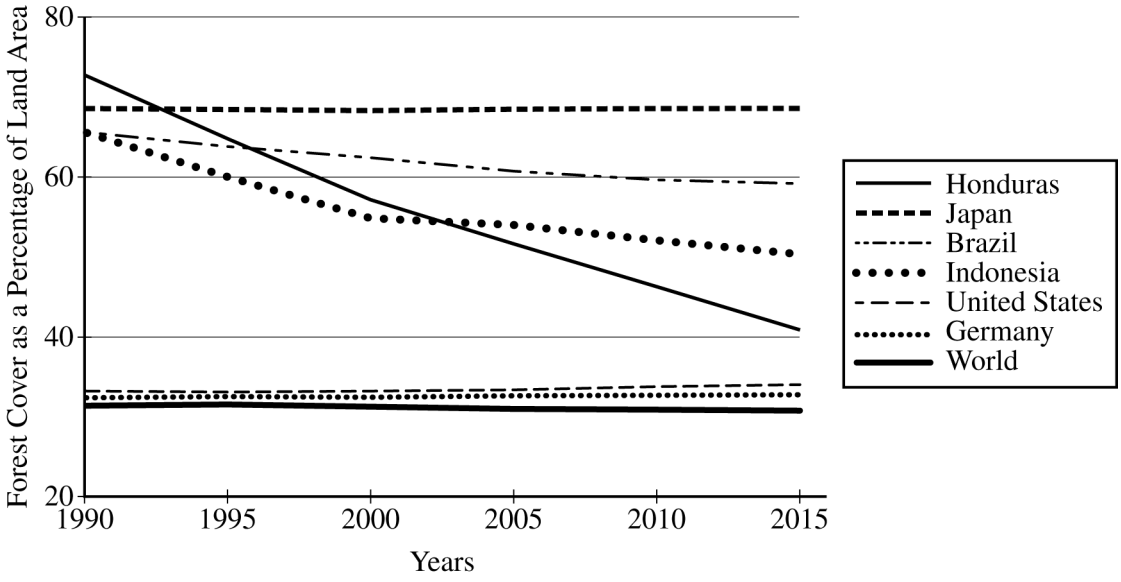
Question 2

FOREST COVER AS A PERCENTAGE OF LAND AREA, 1990–2015



Source: World Bank

2. The graph shows forest cover as a percentage of total land area from 1990 through 2015 for selected countries and the world.

   A. Describe ONE reason a country's percentage of forest cover may change.

   B. Using the data shown in the graph, compare the trends in forest cover change between more developed countries and less developed countries from 1990 through 2015.

   C. Using the data shown in the graph, explain ONE reason for the global trend in forest cover over time.

   D. Explain the degree to which Wallerstein's world system theory explains changes in the pattern of forest cover since 1990.

   E. Explain what the data shown on the graph imply about sources of energy in less developed countries.

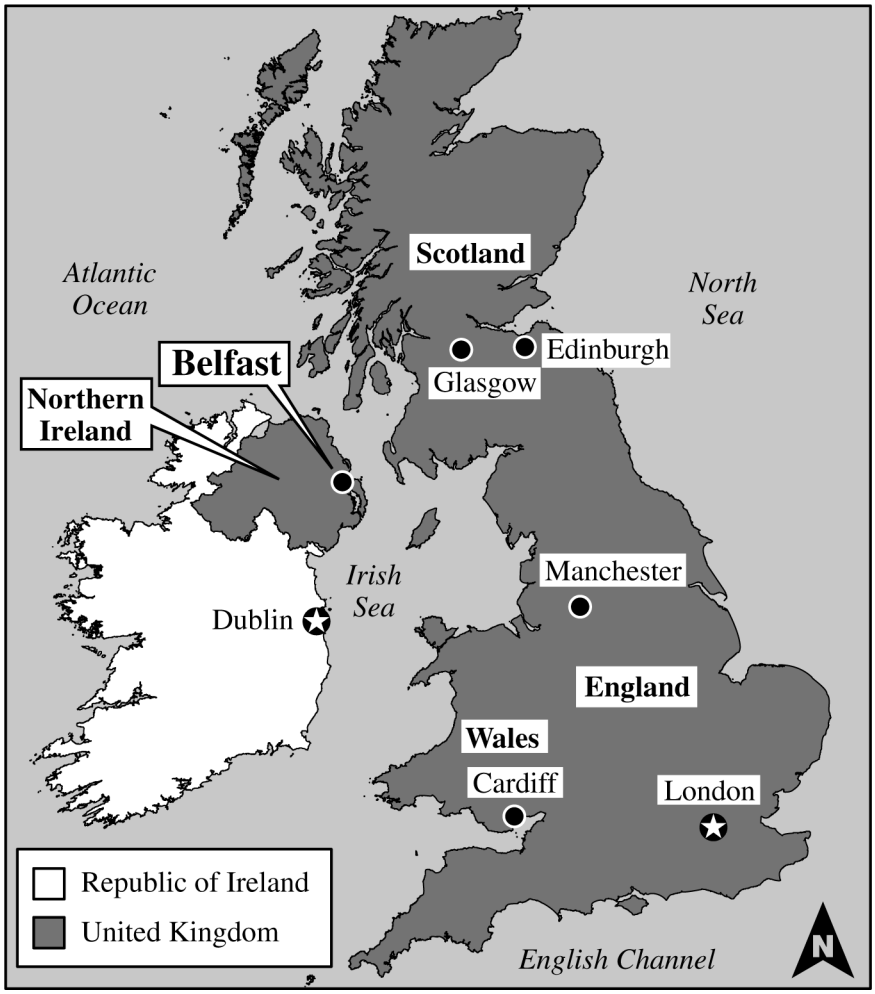
   F. Explain how the global demand for ONE of the following commodities may be driving local changes in forest cover.
      1. Palm oil
      2. Soybeans
      3. Beef

   G. Explain ONE consequence of forest cover change for environmental sustainability in more developed countries.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

Question 3

MAP 1: REPUBLIC OF IRELAND AND THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND



Question 2: One Stimulus — 7 points

(A) Describe ONE reason a country's percentage of forest cover may change. **1 point**

Accept one of the following reasons for forest loss:

- A1. Forests may be cleared for buildings (e.g., houses, businesses), or urban development, or recreational sites (e.g., golf courses), or industrial land use, or infrastructure projects (e.g., roads, powerlines, hydropower projects).
- A2. Forests may be cleared for agriculture (e.g., farms, pastures) or mining.
- A3. Environmental impacts (e.g., fires, floods, salinization, desertification, climate change, pests, disease, coastal erosion, drought, extreme heat, landslides, rising sea levels) may result in forest loss.
- A4. Practices that are not sustainable allow forest loss due to logging for lumber, paper products, and/or energy use.
- A5. Geological forces (e.g., tsunamis, earthquakes, volcanoes) may destroy forests.
- A6. Forest loss may occur in less developed countries as they industrialize, urbanize, and their economies grow.

Accept one of the following reasons for an increase in forest cover:

- A7. Climate change (e.g., climatic shifts) may result in increasing forest cover (e.g., from increasing rainfall).
- A8. Depopulation (e.g., of rural and/or urban areas) may allow a return of residential, industrial, or agricultural land to forest.
- A9. Increasing quantity and/or size of parks or recreation areas may restore forests.
- A10. Tree plantations (e.g., Christmas trees, rubber, eucalyptus) may be counted as forest cover.
- A11. Governments, non-governmental groups, women's groups, indigenous tribal organizations, and/or private citizens may implement forest restoration policies or practices that result in net afforestation.
- A12. Forest may return as less land is needed for agriculture due to better crop yields.

Accept one of the following reasons for either an increase or decrease in forest cover:

- A13. Inconsistencies in remote sensing data (e.g., gaps, misinterpretation) may lead to incorrect estimates of forest cover. Better data and/or improved interpretation may result in revised estimates that increase or decrease forest cover.
- A14. A country's land area may increase or decrease (e.g., Sudan losing area of South Sudan, land reclamation), resulting in loss or gain of forest cover.
- A15. Political conflicts (e.g., wars) may result in gain (e.g., in no-go zones such as DMZs and areas with land mines) or loss (e.g., defoliation) of forest cover.
- A16. Cultural practices that protect forests (e.g., protection of sacred groves in West Africa, protection of Indigenous sacred sites in Australia) may increase in scope, resulting in net gain of forest cover. The opposite can also happen, resulting in net loss of forest cover.

(B) Using the data shown in the graph, compare the trends in forest cover change between more developed countries and less developed countries from 1990 through 2015. **1 point**

Accept one of the following:

- B1. Developing countries lost forest cover while developed countries remained stable or slightly increased forest cover, described in relative terms between example countries from the graph.
- B2. Developing countries lost forest cover while developed countries remained stable or slightly increased forest cover, described using numbers from the graph between example countries.

(C) Using the data shown in the graph, explain ONE reason for the global trend in forest cover over time. **1 point**

Accept one of the following:

- C1. Global forest cover has remained steady or has declined only very slightly because forest cover losses in some regions or countries have been offset (e.g., mitigated) by forest cover gains in other regions or countries.
- C2. Global forest cover has remained steady or has declined only very slightly because destruction of forests (e.g., of rain forests) has been mitigated by regrowth of forests due to farm abandonment or increasing urban afforestation.
- C3. Global forest cover has remained steady or has declined only very slightly because forest cover losses have been offset by large-scale tree planting (e.g., reforestation) in certain areas (e.g., in China, in parts of Africa) and/or because of improved practices in forest management (e.g., using sustainability principles).
- C4. Global forest cover has remained steady or has declined only very slightly because global warming (e.g., climate change) is allowing the tree line to change (e.g., forest can now grow at higher elevations and at higher latitudes, so alpine and Arctic tundra is shrinking), offsetting forest cover losses elsewhere.
- C5. Global forest cover has remained steady or has declined only very slightly because less developed countries are still experiencing high rates of natural increase requiring increased resource and/or land use, while developed countries have low or negative rates of natural increase enabling them to maintain current levels of forest cover.

(G) Explain ONE consequence of forest cover change for environmental sustainability in more developed countries. **1 point**

Accept one of the following:

- G1. Environmental sustainability is affected as biodiversity and ecosystem services are reduced due to deforestation or increased due to afforestation and/or reforestation (e.g., habitat improvement).
- G2. Environmental sustainability is diminished due to the climate change impacts of forest cover loss (e.g., less carbon storage and/or more carbon release (CO_2), increased greenhouse gas emissions, conversion to industrial land uses) or may be increased (e.g., mitigate climate change, shift to alternative energy sources) due to the role of forests in carbon storage.
- G3. Forest cover loss diminishes environmental sustainability by creating environmental justice concerns because, in some cases, marginalized groups are disproportionately affected by forest loss (e.g., by resultant climate change, by loss of access to forest resources), or in some cases, marginalized groups may support forest use as a method of economic development.
- G4. Environmental sustainability is affected because loss of forest cover results in higher prices, increased demand, and/or reduced supply for housing and consumer products in more developed countries.
- G5. Environmental sustainability is diminished because loss of forest cover may result in loss of soil and/or water quantity and quality (e.g., due to erosion, water pollution, runoff).
- G6. Environmental sustainability is diminished when wildfires in more developed countries create airborne dust particles that pollute the atmosphere.
- G7. Environmental sustainability is diminished when deforestation creates airborne dust particles due to fires set by humans or from soil erosion.

Total for question 2: 7 points