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Geography

Higher level and standard level

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Section A

1. Changing population

(a) Outline **one physical** factor that can lead to an area having a high population density. **[2]**

*Award **[1]** for the valid factor and **[1]** for development.*

Valid reasons include:
- proximity to river **[1]**; this will ensure a consistent water supply **[1]**
- availability of flat land **[1]**; means land is easier to build on **[1]**
- coastal locations **[1]**; for easier access to trade **[1]**
- fertile soil in an area **[1]**; crop yields are high **[1]**
- access to energy or mineral resources resources **[1]** development of industry **[1]**
- temperate/equable climates **[1]** allow agricultural production/pleasant living conditions **[1]**.

(b) Suggest **two** ways in which a demographic dividend can bring economic benefits to a country. **[2 + 2]**

*Award **[1]** for a valid economic benefit and **[1]** for development (at a national level).*

Possibilities include:
- The “bulge” in the adult population leads to a high number of economically active people paying taxes **[1]**, benefitting the overall economy / GDP of the country **[1]**.
- More economically active adults than elderly dependents **[1]** means that less governmental tax income will go towards e.g. pensions/care homes **[1]**.
- A lower number of young dependents than economically active people **[1]** will incur less cost for education **[1]**.
- More people in the economically active sector gives a market for goods/services **[1]** this will stimulate industrial activity **[1]**.
- Increase in labour supply **[1]** attractive for MNCs/industrial investment/boost to national productivity.

(c) Explain **two** ways in which environmental push factors lead to forced migration. **[2 + 2]**

*Award **[1]** for the specific environmental push factor and **[1]** for the development explaining how it has led to forced migration.*

Possibilities include:
- Crops fail due to excess heat **[1]**, leading to food insecurity/loss of livelihood **[1]**.
- Homes are destroyed by volcanic eruption/earthquake **[1]**, therefore people have nowhere to live **[1]**
- Extreme weather events such as cyclones destroy communities **[1]** people's homes destroyed **[1]**
- Long term climate change such as increased increased drought/changing monsoons/desertification **[1]** – decrease agricultural yields **[1]**
- Soil erosion/degradation **[1]** – unable to farm and produce food **[1]**
- Water contamination from rising sea levels/chemicals **[1]** – water supply reduced/unable to irrigate **[1]**
- Sea level rise flooding coastal/lowland areas **[1]** – inundation of farmland/communities **[1]**
- Wildfires **[1]** – destroy settlements **[1]**

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2. Global climate — vulnerability and resilience

(a) Describe the distribution of the selected heatwave events shown on the map. **[2]**

*Award **[1]** for each valid statement about the distribution, up to a maximum of **[2]**.*

Possibilities include:
- Uneven
- More in S Europe
- Clusters in SW Europe / Southern Spain
- Clusters in SE Europe/Romania/Bulgaria
- There are fewer in Northern Europe (such as in Sweden and Norway)
- There are fewer in Central Europe (Southern Germany, Czech Republic).

(b) Suggest **two human** factors that can increase vulnerability to extreme weather events. **[2 + 2]**

*Award **[1]** for a valid human factor and a further **[1]** for development. Do NOT award a mark for physical factors.*

- Lower level of economic development of an area **[1]** could indicate a lower investment in projects that would help to reduce vulnerability **[1]**.
- Due to poverty **[1]**, large numbers of people live in locations/property which are/is more at risk from extreme weather **[1]**.
- Development in areas that are liable to experience the impacts of extreme weather **[1]** – housing development on floodplains/lowland coasts **[1]**.
- In areas that have an ageing population there may be greater risk **[1]** due to reduced mobility **[1]**.
- In areas with lower education levels **[1]** there may be less knowledge as to how to prevent / minimize the vulnerability to extreme weather events **[1]**.
- Governmental policies may prioritize spending in different areas such as education or health **[1]** – disaster preparation is not addressed **[1]**.
- Limited risk perception by the population/governments **[1]** – continue to live in areas that experience extreme weather **[1]**
- Gender profile/women more vulnerable **[1]** – skewed power relations/roles in production/lack of access to education/exclusion from decision making **[1]**
- Occupation of the population **[1]** – farmers may be more vulnerable to weather as it is vital for their living **[1]**
- Populations that suffer from the impacts of conflict **[1]** – often live in situations that are susceptable to extreme weather **[1]**

(c) Explain **two** government-led strategies to reduce the causes of global climate change. **[2 + 2]**

*Award **[1]** for a valid government led strategy and **[1]** for development related to reduction of **cause**.*

For example:

- Government investment in renewables **[1]** – reduction of GHG emissions from fossil fuels **[1]**
- Government commitment to global conferences, such as Cop26 in Glasgow ***(not just the name of a Protocol/COP)*** **[1]**, can lead to specific government planned action to combat the source of GHGs *(must state specific planned action)* **[1]**.
- Planning committees encourage replanting of forests **[1]** to create a new carbon sink **[1]**.
- Government-sponsored geoengineering strategies **[1]**, such as cloud seeding to increase cloud cover to reflect solar radiation **[1]**.
- Local government strategies, such as recycling **[1]**, reducing methane emissions from landfill **[1]**.
- Efficiency measures by local government eg installation of LED bulbs/insulation **[1]** – saves on energy use **[1]**
- Transport policies such as making life easier for pedestrians/cyclists **[1]** – takes cars off the roads so decreases use of fossil fuels **[1]**

3. **Global resource consumption and security**

(a) (i) State the daily water usage in gallons per person for the Dominican Republic. **[1]**

1000

(ii) Estimate the range of water usage. **[1]**

1693 *(accept 1685–1710)*

(b) Explain **two** aspects of Boserup's optimistic view of resource management. **[2 + 2]**

*Award **[1]** for each valid understanding of the Boserup approach and **[1]** for development to show how it impacts on management of the food resource.*

For example:
- New inventions/increase in technology **[1]** will increase food availability by using new machinery **[1]**.
- An increase in ingenuity **[1]** will lead to high yield varieties of crops **[1]**.
- Land reform **[1]** will lead to increased productivity of food **[1]**.
- Increase in population stimulates agricultural change **[1]** – more food produced to feed population **[1]**
- Humans will develop alternative resources **[1]** – switch of food resources to cultured meat/plant basd substitutes **[1]**.

(c) Explain why the growth of the global middle class may lead to:

(i) increased water consumption; **[2]**

*Award **[1]** a valid reason and **[1]** for development.*

For example:
- The rise in disposable income associated with the GMC **[1]** means they are able to buy more advanced appliances *eg* power showers/recreational use of water **[1]**.
- Rise of GMC means more access to taps **[1]** – 24 hour availability of water **[1]**
- Increased education of population **[1]**
- Increased consumption of food/meat **[1]** – embedded water/growth of crops requires water/meat production is heavy user of water **[1]**
- Increased use of natural resources/minerals **[1]** – water needed in extractions and processing **[1]**
- Increased use of water in construction **[1]** – GMC build more and better houses **[1]**

(ii) changes in diet. **[2]**

*Award **[1]** a valid reason and **[1]** for development.*

For example:
- An increase in knowledge about what makes a healthy diet **[1]**, leads to an increase in buying more fresh/organic food products **[1]**.
- Increased availability/ability to afford of a range of food choices **[1]** and this can lead to higher consumption of higher-cost food such as meat/imported foods **[1]**
- Increased disposable income **[1]** – increase in amount of food consumed **[1]**
- Changing perception of food **[1]** – Westernized diets **[1]**
- Increased purchasing power **[1]** – shift away from staples **[1]**
- Growth of GMC in urban settings **[1]** – access to restaurants/convenience foods **[1]**

Section B

4. (a) State the female **and** male age groups that have the highest number of bed days used. **[1 + 1]**

Female 85+ **[1]**
Male 70–74 **[1]**

(b) Suggest **one** weakness of the choropleth map in the infographic in the way it represents the old age dependency data. **[2]**

*Award **[1]** for a valid suggestion and **[1]** for development.*

For example: The area that is represented is an average **[1]**, and variations within the area are not shown by category **[1]**.

Other possibilities include:
- the categories are not continuous data
- boundaries between the counties show abrupt changes in value but in reality changes are much more gradual
- counties/provinces not identified
- choropleth maps are normally shown as gradations of the same colour – makes them easier to interpret.

(c) To what extent does the evidence in the infographic support the view that ageing is a significant issue for the Republic of Ireland? **[6]**

*Award **[1]** for each valid point supported by evidence taken from the infographic and/or development of a valid point, up to a maximum of **[5]**.*

*Award a maximum of **[4]** if only one side of the argument is given.*

*Award the final **[1]** for an overall appraisal, which weighs up the infographic as a whole.*

Support:
- Reference to hospital beds occupied by ageing population.
- Reference to healthcare concerns (arthritis).
- Reference to increasing life expectancy.
- Reference to concentration of high/low age dependency ratios in certain areas.
- Healthcare costs relating to old people continuing to rise (11% GDP by 2050).

Against:
- Reference to contributions to society (caring for their grandchildren).
- Reference to economic contributions to members of the family.
- Reference to areas that do not contain high old age dependency.

Do not credit simple quoting of data from the resource – it needs to be given a context.

For example: Ageing is a significant issue for Ireland because providing medical care for the older population takes up a lot of GDP **[1]**. 30% have fair or poor health **[1]**. On the other hand, it is not an issue that is significant across the whole of Ireland **[1]**. The elderly can make contributions to society such as caring for their grandchildren **[1]**. The elderly also provide financial support to the younger generations **[1]**. On balance, ageing is an issue and will become an increasing issue in the future as life expectancy rises **[1]**.