GCE A LEVEL

A110U20-1

S24-A110U20-1

MONDAY, 3 JUNE 2024 – MORNING

GEOGRAPHY – A level component 2
Global Systems and Global Governance

2 hours

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ADDITIONAL MATERIALS

A WJEC pink 16-page answer booklet.
A calculator.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Write your answers in the separate answer booklet provided.

Write your name, centre number and candidate number in the spaces at the top of the answer booklet.

Answer questions 1 **and** 2 and **either** 3 **or** 4 in Section A.

Answer questions 5 **and** 6 and **either** 7 **or** 8 in Section B.

Answer **one** question in Section C.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets [ ] at the end of each question or part-question; you are advised to divide your time accordingly.

This paper requires that you make as full use as possible of appropriate examples and reference to data to support your answers. Sketch maps and diagrams should be included where relevant.

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Section A: Global Systems – Water and Carbon Cycles

Answer questions 1 **and** 2 and **either** 3 **or** 4.

Make the fullest possible use of examples in support of your answers.

Figure 1: Aquifer issues in Africa and the Middle East

Groundwater resources in Africa are sufficient to transform agriculture across the continent and provide people with safe water for all their needs, provided they are better managed. According to a British Geological Survey report, most African countries could manage between 5 and 50 years of drought by using their groundwater reserves. Countries in southern Africa could supply 130 litres a day of drinking water per capita from groundwater by using only a small proportion of stores that are naturally renewed each year. However, only 3% of farmland in those southern African countries is equipped for irrigation, and only one-twentieth of this farmed area actually uses groundwater, even though it is often locally abundant.

There can be dangers to over-exploiting groundwater though. Some aquifers are refilled as rain falls, but other aquifers are not. These "fossil" aquifers store water deep underground which is millions of years old. Some has been effectively "mined" using new pumping methods, for instance to build cities in the desert in the Middle East. This cannot last, as the water is not replaceable across human timescales. A further danger is that when irrigation infrastructure is established, it benefits private firms for large-scale agriculture, often for export crops, leaving local people disadvantaged.

Source: https://www.theguardian.com/environment/2022/mar/21/better-use-of-groundwater-could-transform-africa-research-says

1. (a) (i) Use **Figure 1** to identify the maximum number of years that drought can be managed using groundwater. [1]

(ii) Use **Figure 1** to calculate the percentage of **all** southern African farmland where groundwater is currently used for irrigation.

Write the answer in your booklet. Show your working. [2]

(iii) Use **Figure 1** to outline **one physical** reason why sustainable use of some aquifers is not possible. [2]

(b) Outline the causes of **seasonal** water shortages in **one or more** areas you have studied. [5]

Figure 2: Ground temperature changes in Alaskan permafrost, 1980–2020

Figure 2a

Site Name	Latitude (North)	Ground temperature changes (°C)
Barrow	71.3	+2.2
Birch Lake	64.3	+0.7
Chandalar Shelf	68.1	+1.4
Coldfoot	67.2	+0.6
College Peat	64.9	+0.2
Deadhorse	70.2	+3.3
Franklin Bluffs	69.7	+2.0
Galbraith Lake	68.5	+1.8
Gulkana	62.2	+0.4
Happy Valley	69.1	+1.6
Healy	63.9	+0.2
Kaktovik	70.1	+2.3
Livengood	65.5	–0.1
Old Man	66.4	+1.4
West Dock	70.4	+2.8

Figure 2b

Source: https://www.epa.gov/climate-indicators/climate-change-indicators-permafrost

2. (a) (i) Use **Figure 2** to analyse the pattern of ground temperature changes. [5]

(ii) Suggest how positive feedback could play a role in the changes in **Figure 2**. [5]

Either,

3. To what extent do forests store more water and carbon than grassland areas? [20]

Or,

4. To what extent can local water and carbon flows change in size during a 24-hour period? [20]

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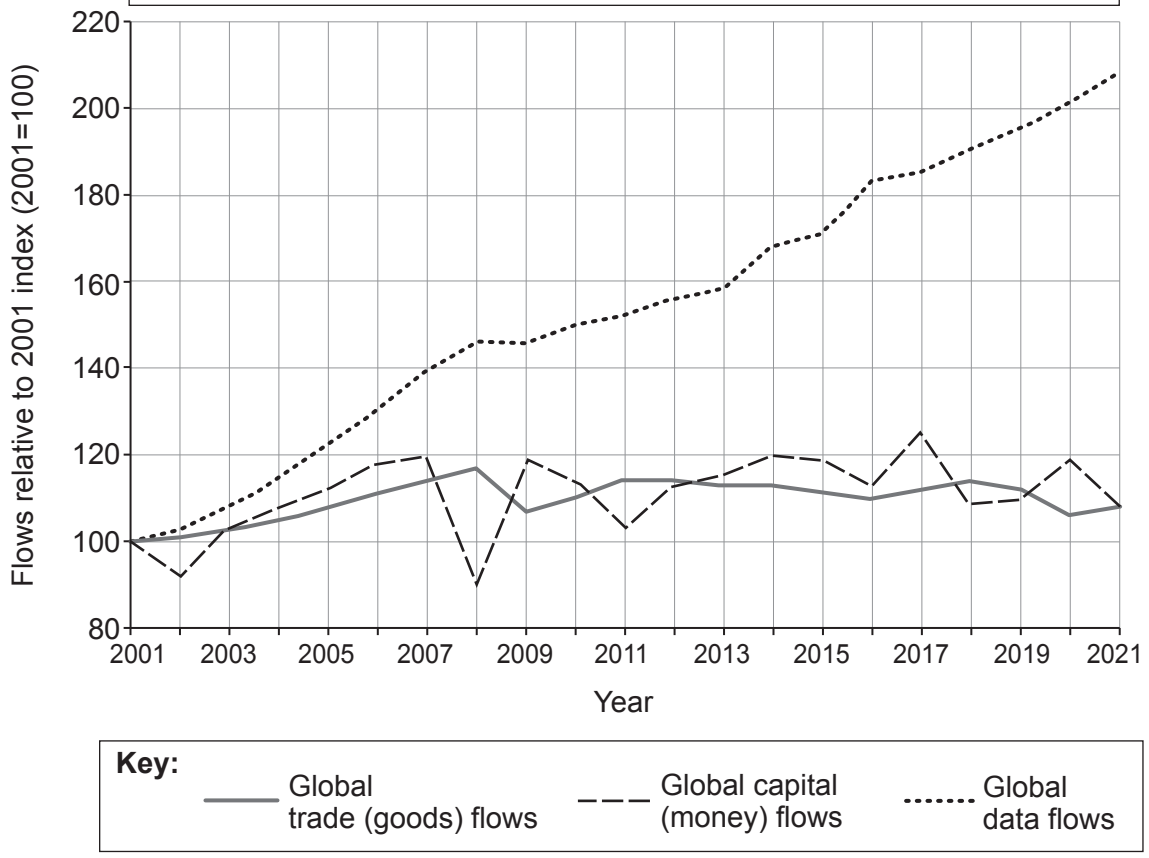
Section B: Global Governance – Change and Challenges

Answer questions 5 **and** 6 and **either** 7 **or** 8.

Make the fullest possible use of examples in support of your answers.

Figure 3: Trends in global flows, 2001–2021

- DHL, a global logistics company, publishes a globalisation report every year.
- This chart is taken from DHL's 2021 report.
- The data are in an indexed form that shows changes in size relative to 2001.

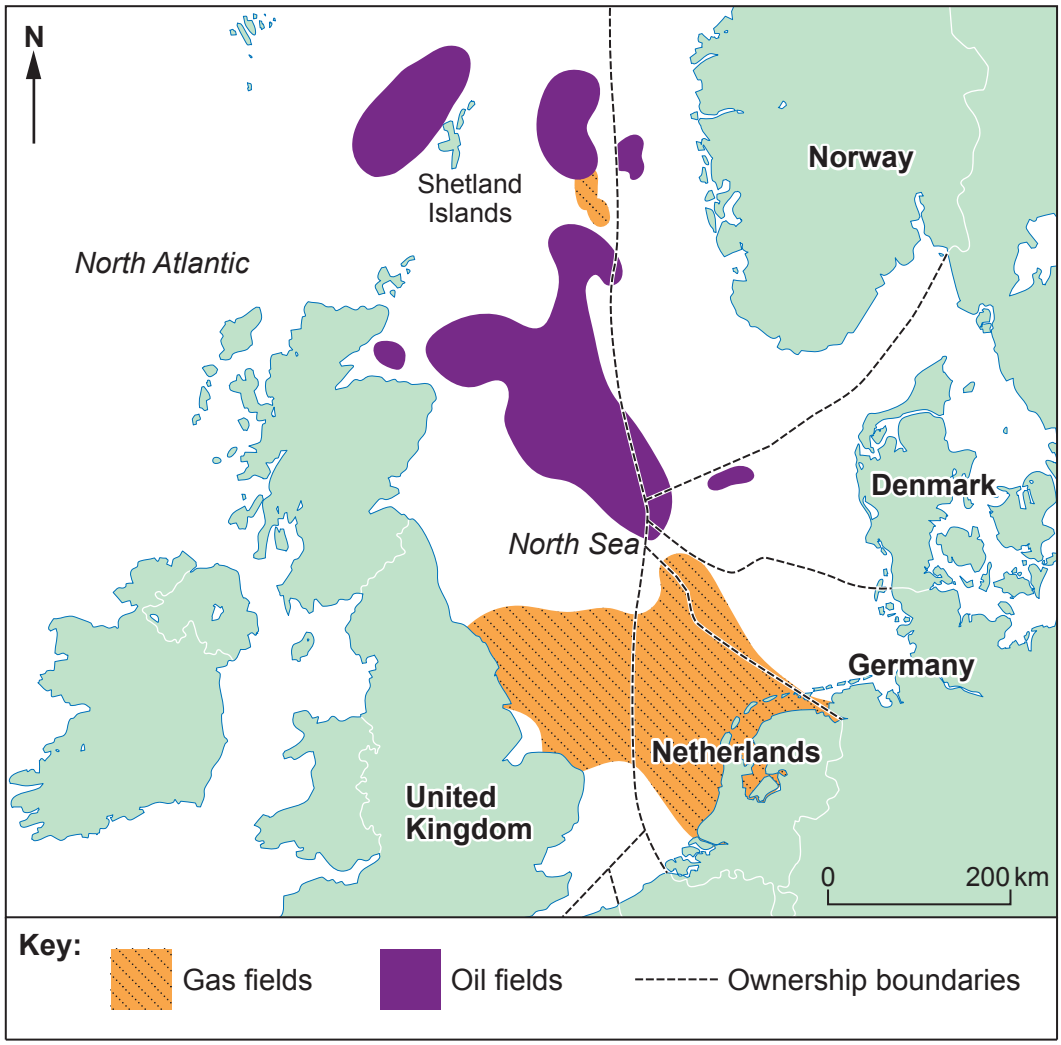


Source: https://www.dhl.com/content/dam/dhl

5. (a) (i) Use **Figure 3** to analyse trends in global flows since 2001. [5]

(ii) Suggest reasons for the changes shown for **one** flow in **Figure 3**. [5]

Figure 4: Oceanic fossil fuel resources in northwest Europe



Source: https://www.crystolenergy.com/assessing-future-north-sea-oil-gas/

6. (a) Use **Figure 4** to analyse the distribution and ownership of fossil fuel resources. [5]

(b) Outline the international rules that help decide who owns different ocean resources. [5]

Either,

7. Evaluate the importance of ocean transport in the growth of global diaspora communities. [20]

Or,

8. Evaluate the importance of economic migration and ocean pollution as issues that affect the interdependence of countries. [20]

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Section C: 21st Century Challenges

Answer **either** question 9 **or** question 10.

In your answer to either question 9 **or** 10, you should use **Figures 5**, **6**, **7** and **8** and apply your knowledge and understanding from across the whole specification.

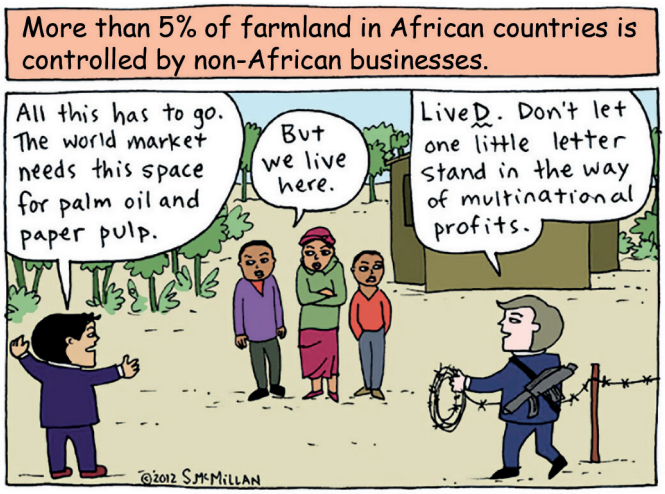
Either,

9. 'Governments are powerless to manage the causes and effects of migration.' Discuss. [30]

Or,

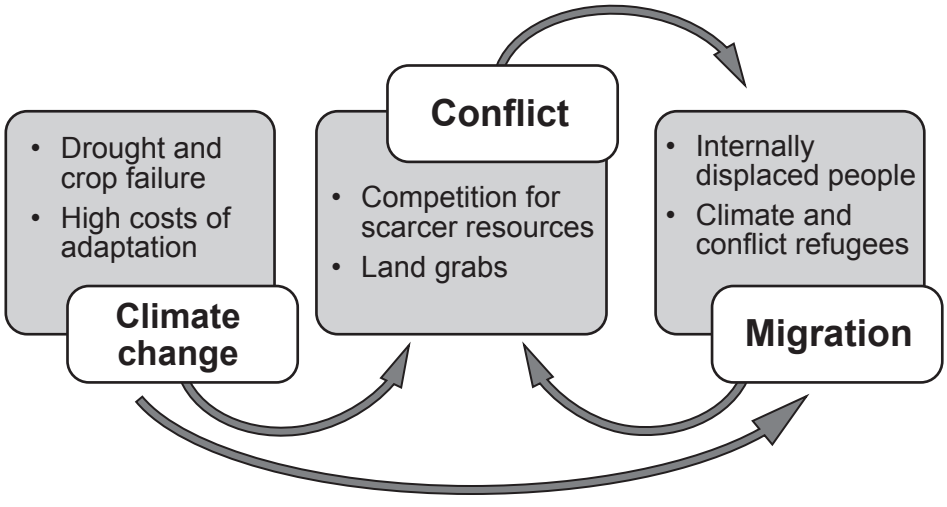
10. 'Far fewer people would migrate if there were less inequality and injustice in the world.' Discuss. [30]

Figure 5: A cartoon drawing attention to the issue of land grabs in the continent of Africa



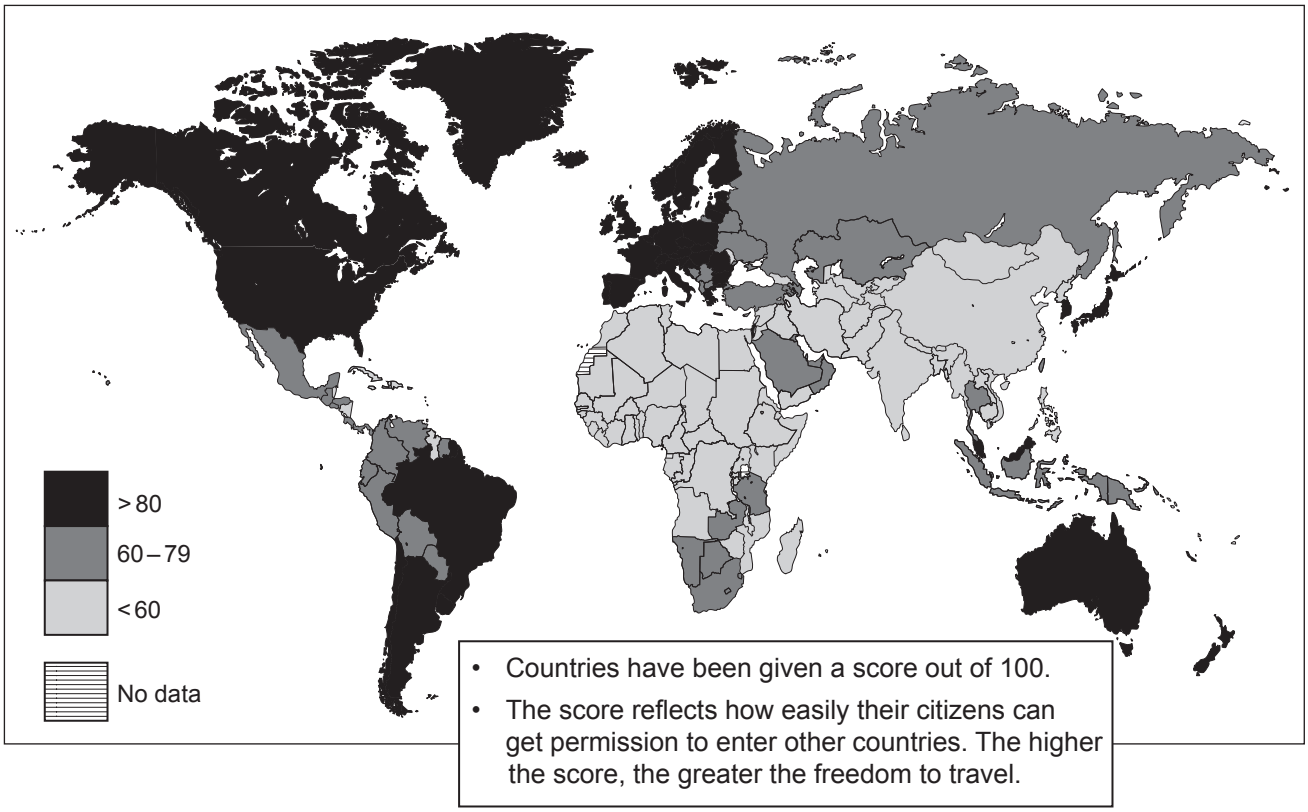
Source: https://cartoonmovement.com/cartoon/land-grab-africa-0

Figure 6: A model of possible links between climate change, conflict and migration



Adapted from: https://phys.org/news/2019-11-climate-impacts-world-trillion.html

Figure 7: World map showing the 'travel freedom' of the citizens of different countries



Source: https://www.researchgate.net/publication/320474154_Revisiting_aspiration_and_ability_in_international_migration/figures?lo=1

Figure 8: Population growth in main English urban areas, 2011–2021

Urban area	Population, 2021 (millions)	Change from 2011
Greater London	8.80	+7.7%
Greater Manchester	2.87	+6.9%
Leeds City Region	2.35	+5.6%
Liverpool City Region	1.55	+3.0%
South Yorkshire	1.38	+2.3%
Tyne and Wear	1.13	+2.0%
West Midlands	2.92	+6.7%
Average change for England (all areas)		+6.6%

Source: Based on data https://commons.wikimedia.org/wiki/File:Population_of_UK_cities_over_time.svg

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