TEMASEK JUNIOR COLLEGE

PRELIMINARY EXAMINATION

Higher 2

GEOGRAPHY

9173/01

Paper 1

23 August 2024

Additional Materials: Insert

3 hours

READ THESE INSTRUCTIONS FIRST

If you have been given an Answer Booklet, follow the instructions on the front cover of the Booklet.
Write your Centre number, index number and name on the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.

Answer both questions in **Section A**.
Answer two questions in **Section B**, one from each cluster.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

This document consists of **4** printed pages.

Section A

Answer **both** questions.

Cluster 1: Development, Economy and Environment

1 Resource 1 shows the progress of Sustainable Development Goal 7 (SDG7) "affordable and clean energy". Resource 2 shows the energy sources for Germany in 2013 and 2023. Resource 3 shows the site of a proposed dam and hydroelectric power (HEP) station in Gambia, a least developed country in Africa. Resource 4 is a fact file about solar canopies in Singapore.

(a) Using Resource 1, describe the pattern of progress towards SDG7. [4]

(b) Explain possible challenges limiting the progress of countries towards achieving SDG7 as shown in Resource 1. [6]

(c) Citing data from Resource 2, compare the energy sources for Germany between 2013 and 2023. [4]

(d) Using Resource 3, explain possible trade-offs Gambia will need to consider should the proposed dam and HEP station be constructed. [6]

(e) Study Resource 4. Explain the potential and limitations of solar energy in providing energy security to Singapore. [6]

(f) Suggest reasons to explain why extractive industries are often dominated by large private and state-owned firms. [4]

Cluster 2: Tropical Environments

2 Resource 5 shows the distribution of karst in tropical China and Southeast Asia. Resource 6 shows two karst landforms in the humid tropics. Resource 7 shows speleothems in a limestone cave. Resource 8 shows vertical drop and horizontal travel distance of two mass movement processes.

(a) Using Resource 5, describe the distribution of karst in tropical China and Southeast Asia. [4]

(b) Compare the features of the two karst landforms shown in Resource 6. [6]

(c) Explain the formation of the speleothems shown in Resource 7. [6]

(d) Suggest **two** ways in which human activities can negatively impact ecosystem services provided by karst landforms. [4]

(e) Compare the relationship between vertical drop and horizontal travel distance of the two mass movement processes shown in Resource 8. [4]

(f) Explain how natural factors can result in the occurrence of mass movement in the humid tropics. [6]

Section B

Answer **either** question 3 **or** question 4 and answer **either** question 5 **or** question 6.

Cluster 1 Development, Economy and Environment

3 Evaluate the value of Malthus' view in explaining population-resource relationships today. [20]

4 'Multilateral institutions have limited influence on Transnational Corporations (TNCs).'

Evaluate this statement. [20]

Cluster 2 Tropical Environments

5 'The El Niño Southern Oscillation (ENSO) has a major influence on rainfall in the tropics.'

Evaluate this statement. [20]

6 Evaluate the influence of climate on fluvial landforms in the humid tropics. [20]

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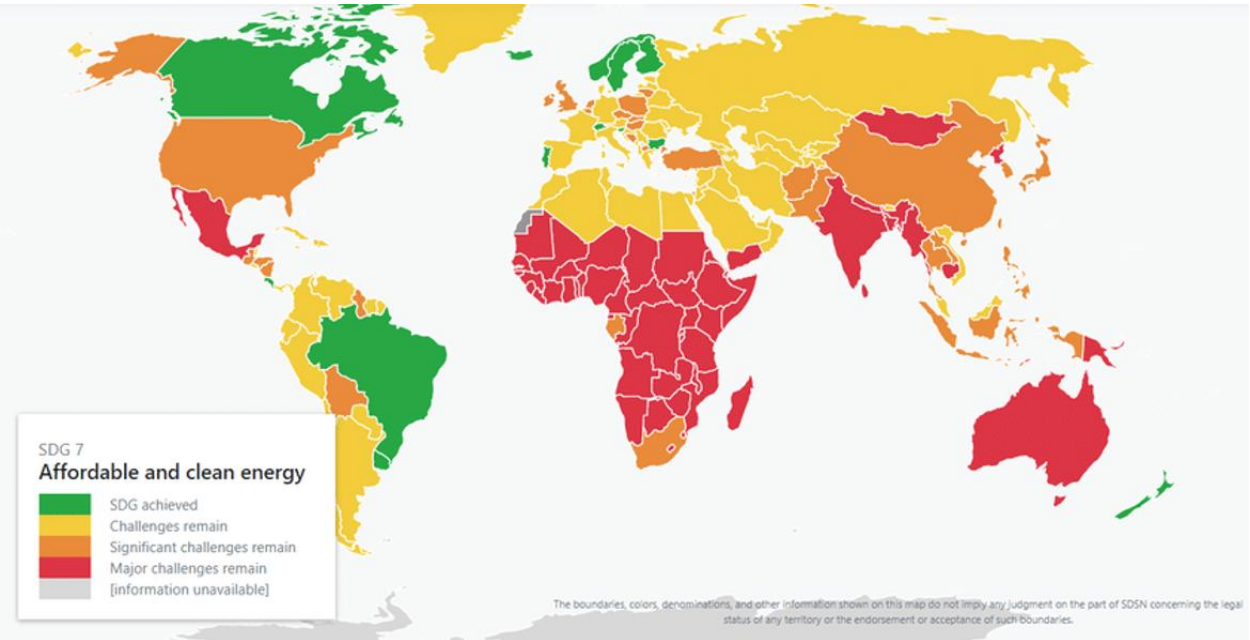
READ THESE INSTRUCTIONS FIRST

This Insert contains all the Resources referred to in the questions.

This document consists of **7** printed pages, and **1** blank page.

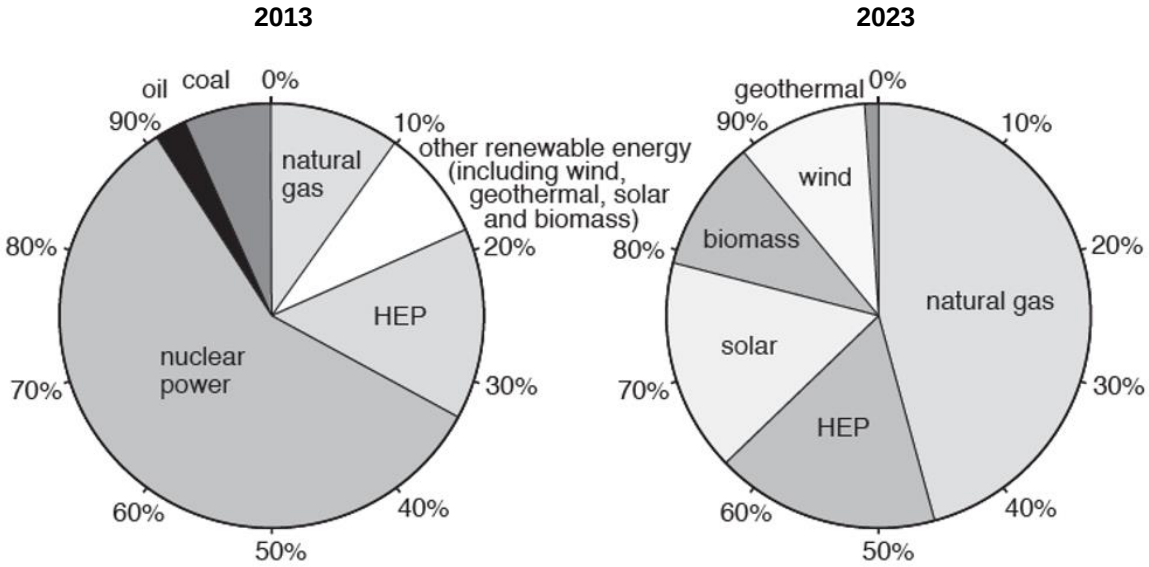
Resource 1 for Question 1

The progress of Sustainable Development Goal 7 (SDG7) "affordable and clean energy"



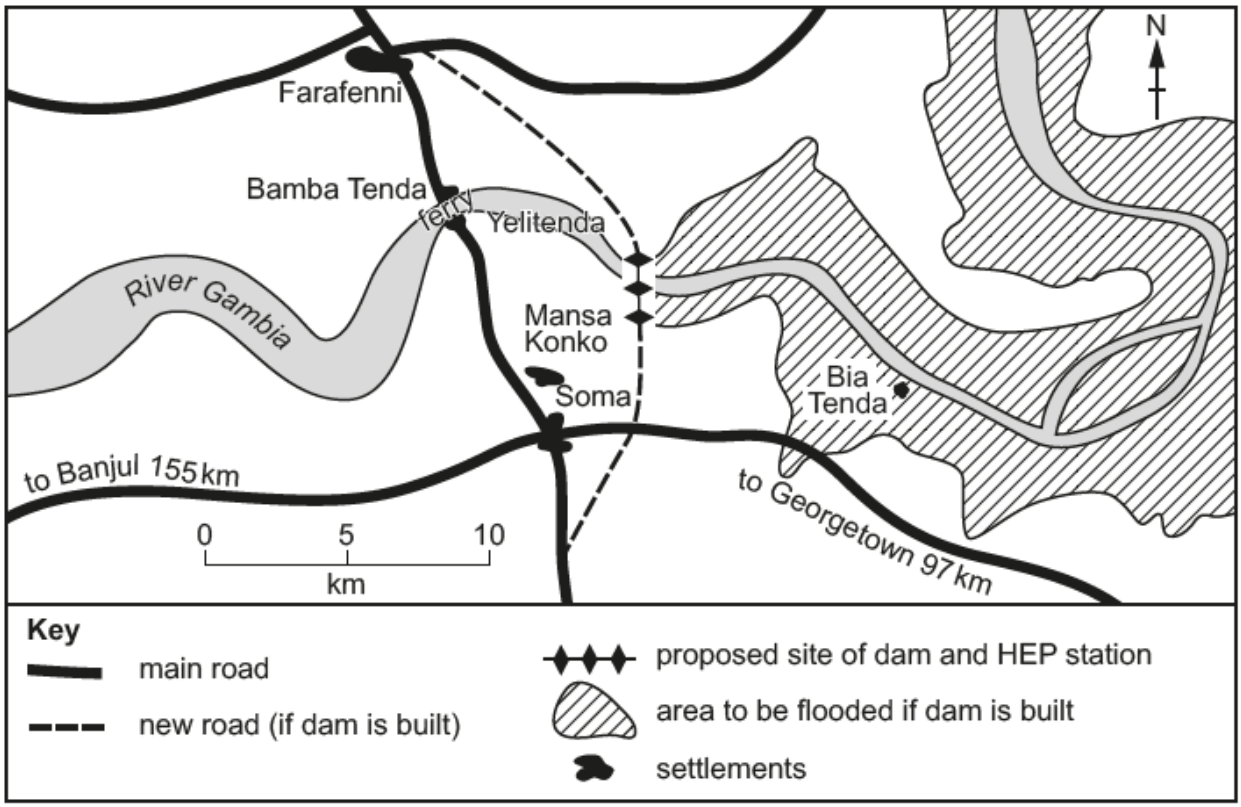
Resource 2 for Question 1

Energy sources for Germany in 2013 and 2023



Resource 3 for Question 1

Site of a proposed dam and hydroelectric power (HEP) station in Gambia, a least developed country in Africa



Resource 4 for Question 1

A fact file about solar canopies in Singapore

- To achieve the national goal of net-zero carbon emissions by 2050 and to maximise the amount of solar energy that can be generated in land-scarce Singapore, the government is exploring the possibility of building solar canopies over roads, carparks, drains and other open spaces in Singapore.
- Solar canopies are outdoor, roof-like structures designed to hold overhanging solar panels, while providing shelter and shade. Some examples here include the canopy at the main entrance of Guoco Tower in Tanjong Pagar, which has integrated solar panels that can produce up to 2 per cent of the building's energy use.

A solar canopy at the entrance of Guoco Tower

- Singapore aims to generate at least 2 gigawatt-peak (GWp) of solar power by 2030, which is enough to meet about 3 per cent of the country's projected electricity demand. As at the first quarter of 2024, Singapore achieved around 1.2 GWp.
- Given Singapore's land scarcity, leveraging the same areas for multiple purposes is critical as solar canopies also provide shade, which could reduce the need for air-conditioning.
- A major challenge with installing solar canopies is the minimum height needed to ensure minimal disruption to the activities beneath which will incur higher structural and maintenance costs, in addition to the already high cost for solar panels.
- Besides construction challenges, there could be other difficulties due to strong winds and heavy rain during thunderstorms, and potential damage due to lightning strikes, Urban areas also tend to be dusty, and this could affect the performance of solar panels, which would need to be cleaned regularly.

Resource 5 for Question 2

Distribution of karst in tropical China and Southeast Asia

Resource 6 for Question 2

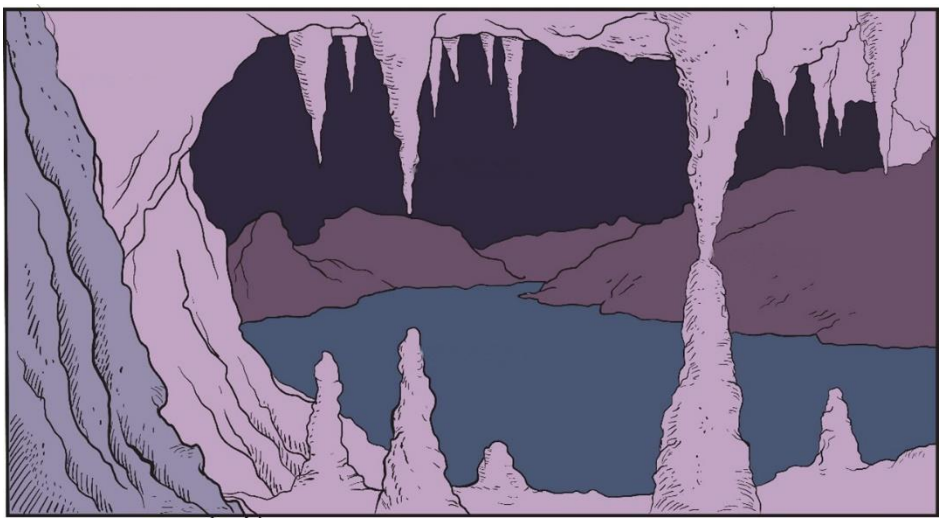
Two karst landforms in the humid tropics

Landform A

Landform B

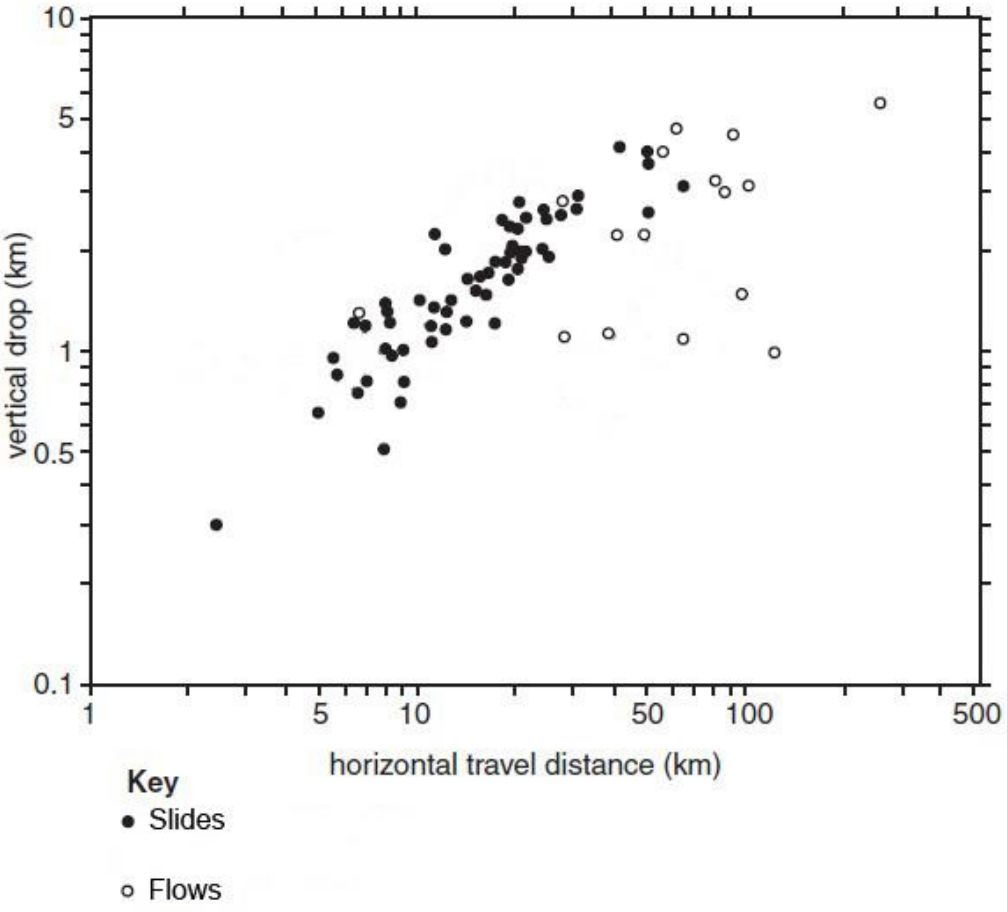
Resource 7 for Question 2

Speleothems in a limestone cave



Resource 8 for Question 2

Vertical drop and horizontal travel distance of two mass movement processes



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