17th Hungarian Geographical Contest 2025/26

2nd Round

Written Response Test

Question and Answer Booklet

12 December 2025

Password:

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Date of birth:

.....

PW:

Instructions for Students

1. Fill in your password and your date of birth on the front page of this **Question and Answer Booklet (QAB)** and also on the top of all pages.

2. The test consists of 6 sections, marked with letters A-F. You can find all the sources (maps, figures, photos, and tables) referred to in the **Source Booklet (SB).**

3. You can earn a total of **137 points.** Each section has a different maximum value:

A	23
B	24
C	23
D	25
E	24
F	18

4. All questions should be answered in the spaces provided in this booklet. **Only answers given in QAB will be accepted:** any answers written in the (SB) will be ignored. The backsides of the papers are available for notes and calculations, but NOT for answers. Any information on the backsides will not be considered throughout marking.

5. **Only the required number of answers** (reasons, examples, etc.) **will be accepted** in the order in which they are written. For instance, if the question asks for 2 reasons and you give more than 2, only the first 2 reasons will be marked.

6. Where appropriate, **write sentences or phrases, not single words.**

7. You might need a calculator, a ruler, crayons, and pencils during the test.

8. **You have a total of 180 minutes** to answer all questions.

Good luck!

Section A: 'When the rain begins to fall' [23 marks]

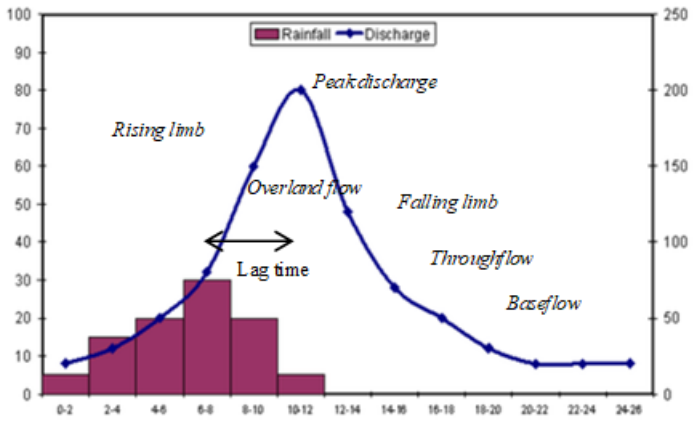
A.1. Study sources **A.1-5. in the Source Booklet (SB)**. Cloud formation is key in atmospheric processes that can subsequently contribute to precipitation and storm events. Name the processes that can contribute to cloud formation. [2.5 marks]

	0.5 marks each Adequate explanation of the same term also correct
A.1.1.	*Advection*
A.1.2.	*Topographic lift*
A.1.3.	*Convection*
A.1.4.	*Convergence*
A.1.5.	*Frontal lift*

A.2. Storms can cause intense rainfall and flash floods in susceptible areas. Use the attached flood hydrograph to annotate the most important attributes of flood events and explain the terms listed below.

A.2.1. Annotate the following attributes to the chart below. [3.5 marks]

Peak discharge	Rising limb	Falling limb	Lag time
Base flow	Throughflow	Overland flow	



Source: TES teaching resources

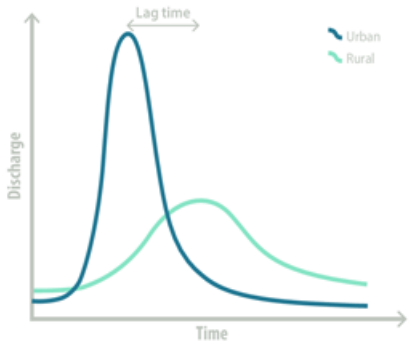
A.2.2. Define the following terms [3 marks]:

Base flow:	*The portion of a river's flow that comes from groundwater seeping into the channel. It sustains river flow during dry periods when there is no rainfall.*
Throughflow:	*During stormy weather some of the precipitation infiltrates into the soil and flows above the water table toward a river or stream.*
Overland flow:	*After rainfall can't percolate into the ground due to it's saturation, it flows on the surface as runoff towards rivers.*

A.3.1. Outline the effects of urbanisation on flood hydrographs, make sure you explain your answers and sketch both the urbanised and natural graphs in your answer. [4 marks]

*Urbanisation makes flood hydrographs steeper and more abrupt. Because impermeable surfaces like roads and buildings prevent infiltration, rainwater runs off quickly into rivers through drains and other channels. Decreasing local vegetation and flood channels, storm drains also prohibit percolation and natural evapotranspiration causing local or downstream flood problems by increasing surface runoff. This causes a **shorter lag time**, a **steeper rising limb**, and a **higher peak discharge** compared to natural areas, where water infiltrates into the soil more slowly and flows towards the rivers as throughflow ideally.*

If they mention the three main changes in the graph (shorter lag time, steeper rising limb and greater peak discharge) that is worth 2 points, further explanation such as impermeable surfaces is another point. If they sketch the urban and natural hydrographs in a similar way as attached below, they get 0.5 points each, totalling 1 point for a correct sketch. It should support their arguments in the previous answer.



Source: Lefrançois, Camille B.. (2015). Designing Effective Stormwater Management Policies - The Role of the Urban Forest and Impervious Cover in Vancouver, B.C.. 10.14288/1.0300042.

A.3.2. Identify three possible sustainable urban solutions that can be implemented to reduce the risks of flash floods and to restore the natural movement of water in stormy conditions. [3 marks]

Permeable and porous pavements allow water to infiltrate into the ground preventing it from travelling as surface runoff.

Green infrasturcture such as green roofs, rain gardens and trecnhes that can intercept rainwater and slow it down at the same time, reducing the chances of flash floods. It also provides habitats for animals in the city as well as contributes to cooling in hotter periods.

Restoration of flood plains, wetlands and temporary retention basins. By accommodating certain areas for the retention and storing of flood waters, allows these events to be less abrupt on urban environments and pass in a natural fashion. Peak discharges and the effects of flash floods decrease significantly this way, by postponing the arrival of these floods and making them more gradual (rising limb becomes more gentle).

Underground temporary storage of rainwater can both help in detaining peak flows and provide water for urban environments if cleaned.

A.4. Humanity has had to adapt to adverse weather conditions for a long time, which has led to some smart and empirical observations that were often true, yet could not be explained scientifically. Your task is to explain why the following pirate saying is generally true. Try to think of how weather is controlled in temperate areas, how it is related to air pressure conditions, the composition of air and the properties of sunlight. Consider this to be true in the northern hemisphere and explain your answer accordingly. [7 marks]

"Red sky at night, sailor's delight!
Red sky in the morning, sailors take warning!"

Weather in temperate areas is controlled by air pressure fronts; cyclones and anticyclones, the former having low pressure in the centre and the latter having higher pressure in the middle. Cyclones often carry wet and unstable air, whilst anticyclones promote clear, dry weather. - 2 points

In the northern hemisphere's temperate area these cyclones and anticyclones typically move from West to East controlled by the prevailing westerly winds in this area. - 1 point

As anticyclones have higher pressures in their core, they push air down, toward the ground. At sunset and sunrise sunlight travels through denser and thicker layer of air above the surface, and shorter wavelengths of sunlight get scattered (blue and violet) and the longer wavelength colours remain, hence the red and orange colours. - 2 points

As the sun sets in the west and rises in the east, if they see red sky at night, they now that dry and clear weather is approaching, safe for sailing. Whereas if they see red sky in the morning, it means that a cyclone should approach from the west, as these weather systems are always coupled. - 2 points)

Section B: 'Hello darkness, my old friend' [24 marks]

1. Use **SB B.1.** in this task. Match the cave types listed below with the pictures given in SB. You can use each picture only once. There is an additional row, which does not fit any of the sources or rocks. Please sign this with X. [3 marks]

	Cave types	Number of pictures
B.1.1.	Lava cave	B.1.1.
B.1.2.	Littoral cave	B.1.3.
B.1.3.	Loess cave	B.1.6.
B.1.4.	Karst cave	B.1.2.
B.1.5.	Ice cave	B.1.4.
B.1.6.	Sand cave	X
B.1.7.	Talus cave	B.1.5.

1.2. Explain the genesis of these cave types shortly. The one which did not have any accurate pair in the previous task should be left empty. [6 marks] *Shorter definitions are correct, hereby we tried to give a longer explanation.*

B.1.1.	lava cave, cave or cavity formed as a result of surface solidification of a lava flow during the last stages of its activity. A frozen crust may form over still mobile and actively flowing liquid rock as a result of surface cooling. A dwindling supply of lava may then cause the molten material to drain out from under this crust and leave long cylindrical tunnels. Volcanic gases from bubbles in the lava collect under the tunnel roof and support it. As this gas mixes with air from vents in the roof, more intense heating from oxidation may raise the temperature sufficiently to re-fuse the ceiling rock, which then drips with the remelted lava. Such lava may congeal in place to form rude stalactites. Caves of this type commonly have solidified lava streams along their floors; in places, the roofs may collapse to form pits or depressions on the ground surface.
B.1.2.	A sea cave, is also known as a littoral cave, a type of cave formed primarily by the wave action of the sea. The primary process involved is erosion, more specifically abrasion.
B.1.3.	Loess is an extremely porous sediment, which can easily erode, for example by groundwater or rainfalls. Water can easily wash out sediments, creating caves.
B.1.4.	Karst caves are formed by a weathering process of the limestone indicated by water, which interacts with calcium-carbonates. As water dissolves limestone, underground channels of water are created.
B.1.5.	ice cave, cavity in ice or an underground cave that has permanent ice deposits. The two types of ice cave are wholly unrelated. The second type of ice cave occurs either when frigid winter air settles into downward-leading caverns where it cannot be forced out or when moisture freezes in currents of cold air. Frozen lakes, icicles, and ice draperies are common formations.
B.1.6.	There's no such thing as sand cave.
B.1.7.	Talus caves are openings formed between boulders piled up on mountain slopes. Most of them are very small both in length and in cross section. Some boulder piles, however, do have explorable interconnected "passages" of considerable length. Some of the largest talus caves occur among granite blocks

B.2. Mammoth Cave

The Mammoth Cave, or more accurately the Mammoth–Flint Ridge Cave System in Kentucky, USA, is the longest known cave system in the world, with passageways of 686 km.

Read the text provided in SB B.2. It is about an early journey into the depths of the Mammoth Cave in the mid of the 19th century. The description contains many observations, which are important features of the caves' geomorphology and special environment.

B.2.1. List four geomorphological forms, which are typical in karst caves and are mentioned in the text. [2 marks]

2.1.1. *stalactite*

2.1.2. *cave spring/creek*

2.1.3. *block of rocks*

2.1.4. *ceiling/white ceiling*

B.2.2. Name two elements of the cave's environmental conditions, described in the text. [2 marks]

2.2.1. *permanent temperature, always 60 °F*

2.2.2 *dry air (mummies)*

B.2.3. There are hints for human utilisation of the caves; name two of them. [2 marks]

conservation of food
2.3.1. *mining*
burial place (mummies)

B.2.4. Look at the map provided in SB B.2.4. You can see the complexity of the Mammoth Cave system. Name three physical geographical conditions required for the formation of such a huge cave system. [3 marks]

2.4.1. *even, generous precipitation*

external sediment

2.4.2. *geological stability*

changing climatic conditions

2.4.3. *massive limestone layer*

B.3. Caves and visitors

Since the very beginning of the literature, a journey under the Earth's surface, often associated with the underworld, is one of the hardest tasks a hero could have. Today, visiting a cave is not necessarily a lethal challenge.

B.3.1. Study map SB B.3. There are huge differences in the number of show caves around the world. Name four possible reasons for the given pattern. [4 marks]

3.1.1.	*significance of tourism*
3.1.2.	*difference in financial support of cave explorations*
3.1.3.	*given economic standards are required for cave tourism → visitors needed*
3.1.4.	*physical geographical conditions → geology – bedrock; environment - climate*

B.3.2. Sustainability is an issue in the case of caves, too. Name two possible threats to the caves caused by tourism! [2 marks]

3.2.1.	*tourists ruin limestone formations*
	littering and other forms of pollution
3.2.2.	*light, noise and generally visitors disturb cave flora and fauna*

Section C: 'I'm an alien. I'm an evil alien.' [23 marks]

C.1. Biological invasions are one of the top five drivers of global biodiversity loss, contributing to 60% of global extinctions and causing damages worth $ 423 billion per year.

<table>
<tr><td colspan="2">C.1.1. Name two of the four other top drivers of global biodiversity loss. [2 marks]</td></tr>
<tr><td>•Habitat loss and degradation
•Overexploitation of species
•Pollution
•Climate change</td><td>•or any of these 4 concepts worded differently, i.e. excessive hunting, fishing, or harvesting, destroying or fragmenting habitats</td></tr>
<tr><td colspan="2">C.1.2. Outline one way invasive species can negatively impact each of the following (one answer/category). [3 marks]:</td></tr>
<tr><td>Human health</td><td>spreading; allergic reactions; contamination of water sources,</td></tr>
<tr><td>Food systems</td><td>reduction of crop yields or preying on of pollinators, damage to fisheries, soil degradation, pest outbreaks, livestock diseases</td></tr>
<tr><td>Native species</td><td>Predation, competition, or habitat alteration causing decline or extinction</td></tr>
<tr><td colspan="2">C.1.3. Name and justify one potential reason why the number of invasive species detected has been steeply rising in the past 100 years. [2 marks]</td></tr>
<tr><td colspan="2">Globalisation - Increased global trade and travel have transported species beyond their native ranges at a rate unprecedented before.
(but also: habitat disturbance can facilitate invasions; climate change also allows species to establish and spread in new regions; detection ability has improved due to better monitoring methods and increased awareness)</td></tr>
</table>

C.2. Map C.2. in SB shows the global distribution of established alien species, including invasive species and introduced species with the potential to become invasive.

Based on the map and your own knowledge, describe two trends in the recorded global distribution of established alien/invasive species. [4 marks]

Pattern: high densities in Eurooe, US, Australia; Explanation: global trade & transport: shipping, air traffic -> more introductions by accident (e.g. ballast water of ships, soil, packaging, humans) but also intentional introduction (e.g. pets, aquaculture). & relatively long history of human movement, trade & colonisation; intensive agriculture, urbanization and fragmentation create disturbed habitats which tend to be easier for alien species to colonise.
Pattern: Few recorded species in more remote regions e.g. Antarctica; Explanation: limited human presence and transport/trade – isolation, fewer opportunities for introduction; Harsh climates -> not that many species can survive or establish
Pattern: Lower recorded number of alien species in regions with high data gaps e.g. in most of Africa as compared to Europe - Explanation: possible underreporting; many low-income regions have limited funding for biodiversity monitoring, potentially undocumented invasives
Pattern: High density in the Mediterranean sea ; Explanation: High ship traffic (esp. since the opening of the Suez Canal which also allows species to enter from and through the Red Sea), intense aquaculture, tourism

C.3. Biological invasions have reached almost all corners of the world, with a range of introduction pathways and effects on ecosystems. Match the short descriptions of specific invasion „stories" with their numbered locations on SB C.3.1., and the letters of the pictures in SB C.3.2. of the „guilty" invasive species in question! [5 marks]

Description	Location (number)	Species (Letter)
Originally starting as a population of only four individuals on the private property of one of the country's most (in)famous personalities, this species has considerably expanded its range along the country's river courses since its introduction. The climate of the new environment lacks the droughts typical of its native habitat, allowing the population to breed and spread unusually rapidly. Negative impacts include erosion of riverbanks, fragmentation of native forests, and threats to the country's native plant communities, which are ranked among the world's top five most biodiverse.	2	C.3.4.
This invasion stems from intentional release by humans: the species was introduced as a biocontrol agent against cane beetles, which are pests of one of the country's primary crops: sugarcane. There is no evidence that the species reduced cane beetle populations. Instead, it had severe ecological impacts, posing harm to native predators and displacing local species.	5	C.3.2.
This invader has altered the fire regimes of a naturally dry region characterised by high plateaus, rain-shadow deserts, and mountain ranges. Continuously "fuelling the fires", it has shortened the natural fire-return interval, increasing both the frequency and extent of wildfires affecting the region and threatening rural communities, traditional rangeland use, and native wildlife.	1	C.3.3.
This invasive species is believed to have arrived in a cargo of pottery from China around 20 years ago and has spread rapidly from its introduction site over the next two decades. The invasion is particularly costly in affected countries, as it damages agriculture by reducing pollination services and honey production, while also posing a threat to human activities.	3	C.3.1.
Introduced purposefully to combat desertification in this arid region marked by seasonal rivers, this species is now spreading uncontrollably. It depletes the region's scarce water sources, reduces access to grazing lands and water points, and obstructs movement for pastoral communities. It is particularly problematic in areas where livestock herding is a major source of livelihood and where prolonged drought cycles shape both the landscape and human activities.	4	C.3.5.

C.4. In total, invasive species have driven more than 1,200 documented extinctions around the world. The majority (90%) of these have occurred on islands.

C.4.1. Using map C.4. in SB and your own knowledge, identify three possible reasons why islands may be particularly hard-hit by biological invasions compared to mainland ecosystems. [3 marks]

- *Many islands states import much of their food & materials, which means more chances for invasive species to be imported too*
- *many islands have high tourist traffic which means non-native species are more likely to be imported (e.g. flights an cruise ships bring seeds, insects, fungi and microorganisms unintentionally)*
- *surrounded by water, so the native biota often can't „escape" by expanding their range*
- *Low species richness, empty niches -> invaders can exploit*
- *Naïve communities : local biota often evolved without any predators or competitors -> lack adaptations (defenses) to predation or competition*
- *Endemic biodiversity – many island species are not found anywhere else, invasions here can drive entire species to extinction*
- *islands are often biodiversity hotspots with many endemic species -> invasions there can cause proportionally greater loss of global biodiversity than on the mainland.*
- *population sizes of native species are often small, and populations are often isolated -> more susceptible to rapid declines*

C.4.2. A small island's economy is highly dependent on agriculture and ecotourism. Outline two management strategies that could reduce the risk or impact of invasions and explain why those strategies might work in an island context. [4 marks]

1. ***Strict biosecurity at ports and airports:***
   - *Screening imported goods, and persons entering; quarantine of plants/animals, inspections -> reduce the likelihood of new invasive species arriving.*
   - *Works well on islands because there are limited entry points and entry mechanisms*
2. ***Rapid eradication and control programs for new invasions:***
   - *Early detection followed by removal of invasive plants or animals -> prevent establishment and spread.*
   - *Effective on islands due to smaller land area and contained ecosystems. – eradications may be easier than on maylands*

Other possible strategies:

- *Public awareness campaigns to prevent accidental introductions & raise awareness*
- *Habitat restoration to increase resilience of native ecosystems*
- *Legislation restricting import of high-risk species or limiting tourism etc*

Section D: 'Aruba, Jamaica, ooh, I wanna take you To Bermuda…' [25 marks]

It is beyond question whether small Caribbean islands are attractive. Scenic views and turquoise water, compared with golden beaches, make these places tourist paradises. Recently, it's not only the tourists who have an impact on these idyllic places, but also those who choose to live here permanently.

D.1. Population pyramids

D.1.1. Study Figures D.1. in SB. Which stage of the demographic transition model do these population pyramids represent? [1 mark]

5th stage/ageing/shrinking → 1 mark *4th stage → 0,5 mark*

D.1.2. Study the population pyramids. List three common demographic features of these countries. [3 marks]

high proportion of elderly
low birth rates
low proportion of youngsters
majority of women
long life expectancy

D.1.3. There is one exception among these countries, which has one process that differs from the three others. [1 mark]

Which is this country?	*Curaçao*
Which process differs from the other three?	*surplus of younger active age population* *immigration of active workers* *immigration of 20-30 year old population*

D.2. Migration trends

D.2.1. Study map D.2.1. and D.2.2. in SB. According to the sources, list three main reasons for immigration and emigration in the Caribbean islands listed here. [3 marks]

Immigration	Emigration
common spoken language	*common spoken language*
legislative advantages → for example passport	*legislative advantages → passport*
scenic environment	*known employment culture*
pleasant climate	*unemployment and economic challenges*
cheaper	*overwhelming tourism*

D.2.2. Here, you can read statements with justifications. Evaluate and decide on every statement and justification individually, whether they are correct or not. In case you find a correct statement with a false justification, you have to form a correct justification below. [8 marks]

	Statements		**Justifications**	
a	The population in the listed countries are ageing,	*T*	mainly because natural reproductive processes tend to this phenomenon.	*F*
b	Immigrants of these islands have no impact on the local economy,	*F*	as their financial status does not differ from the local level.	*F*
c	The reason for ageing in these countries is amenity migration,	*T*	which mainly includes wealthy senior people.	*T*
d	Guadeloupe and Martinique could have faced economic challenges between the 1980s and 2000s,	*T*	as there is a clear lack of population born in this period.	*F*
e	Life expectancy in these islands is relatively long,	*T*	thanks to the ideal climate conditions and quality services provided.	*F*
f	Senior immigrants appear in higher volume in these islands,	*T*	while leisure services and idyllic tropical environments are very attractive.	*T*

Add your corrections here:

a. The population in the listed countries are ageing, mainly because younger population emigrates/elderly population immigrates. (One correct of the two is satisfactory)
b. Immigrants of these islands have an impact on local economy, as their financial status differs from the local level.
d. Guadeloupe and Martinique could have faced economic challenges between the 1980s and 2000s, but population gap in the ages of 40-20 was created by emigration of young workers.
e. Life expectancy in these islands is relatively long, because elderly who move here are originated from developed countries with higher life quality and HDI.

D.3. Amenity migration

D.3.1. Study sources D.3. in the SB. In some regions, amenity migration has become one of the main types of migration in recent decades. Based on the sources, give your definition of amenity migration. [1 marks]

The permanent migration of middle class/wealthy/rich seniors/elderly from developed states to scenic countries, which offer high quality services and leisure activities for old generations, and where prices are lower.
Definition should include: migrate or travel or move; middle class or wealthy or rich; elderly or senior or old; better climate or scenic view or better environment or high quality services or leisure activities for elderly.

D.3.2. Name possible forms of conflicts related to amenity migration in the given territories. Find at least four. [2 marks]

- increasing prices – locals struggle financially *- age gap conflicts – young vs. old* *- cultural differences between immigrant and local population* *- services targeting elderly, local doesn't have sufficient amenities* *- taxing – old pensioners doesn't work, don't pay taxes – costs a fortune to the state* *- increasing price level of the real estate market – housing becomes unaffordable for locals (gentrification)* *- mass tourism – littering, parking, noisy tourists etc.*

D.3.3. Based on the sources and your knowledge, discuss the advantages and disadvantages of amenity migration on these Caribbean islands. Include three of each. [6 marks]

Advantages *+ growing economy, increasing GDP* *+ developing infrastructure* *+ developing services and amenities* *+ positive international reputation of the country* *+ job opportunities for locals* *All must be discussed and explained how*	*Disadvantages* *- countries become dependent on immigration and/or other countries* *- economy becomes dependent on tourism* *- job opportunities are not sufficient for other professions, it increases emigration* *- prices increase based on the purchase power of amenity migrants* *- gentrification – increasing housing prices and unaffordable living* *- state resources invested in infrastructure and services for the elderly, not for the locals* *All must be discussed and explained how*

Section E: ‘We could’ve gone all the way to the Great Wall of China’ [24 marks]

Welcome, analyst. Your mission is to travel along the 21st-century Silk Road. The ancient Silk Road was not just a path for trade but also for the flow of knowledge, ideas, and cultures. China's new „Belt and Road Initiative” (BRI) aims to reconnect Asia, Europe, and Africa along the lines of 21st-century challenges and opportunities.

In this task, you must investigate how this massive geopolitical and economic undertaking is changing the physical landscapes and human societies of the Earth across continents, ports, and mountain ranges.

E.1. Identify the country or city that matches each description, using SB E.1-2-3., and your geographical knowledge. [4 marks]	Name of country or city
This city is located in a South Asian nation that is developing a major deep-sea port on the Arabian Sea. This port is the key endpoint of the „China-Pakistan Economic Corridor”.	*Gwadar*
In this East African country, the new railway connects the state's main port (Mombasa) with its capital.	*Kenya*
This historic city is depicted as a northern terminus for the „New Maritime Silk Road” in the Adriatic Sea. It serves as a gateway for goods entering Central Europe via the Mediterranean route.	*Venice*
An EU member state, shown on the Resource A map, functions as a key entry point for the „New Maritime Silk Road” into Southern Europe. Although its direct FDI from China listed in Resource B is relatively small, this country is famously home to the Port of Piraeus, where a Chinese company acquired a majority stake, turning it into their major Mediterranean hub.	*Greece*
This vast, landlocked Central Asian country serves as the primary energy and transit hub for the „Silk Road Economic Belt”. According to the map, it is the only nation traversed by all three major infrastructure types: railroads, oil pipelines, and gas pipelines.	*Kazakhstan*
Located at the heart of Central Asia, this double-landlocked country is indicated on the map by the industrial city of “Angren”. The rail infrastructure is critical for unifying the region's fragmented transport network and connecting the “Silk Road Economic Belt” to routes further south.	*Uzbekistan*
A landlocked Southeast Asian country, which was linked to the Chinese railway network, was to create a connection between Shanghai and Singapore.	*Laos*
A capital city that gains a new high-speed rail connection with the country’s largest metropolitan region, including a link between the European and Asian continents.	*Ankara*

E.2. Investment, trade, and resources. Study SB E.2.

E.2.1. Calculate and analyse the changes in realised FDI value for all countries/regions between 2015 and 2022 using the key metrics provided below. Please add the formula you have used for your calculations.

Add the formulas here. [2 marks]

Changes in the number of companies	FDI value pro company (2022)	Absolute increase	Percentage increase
N.r. companies 2022-N.r. companies 2015	*FDI value 2022/N.r. companies 2022 in 100 million USD*	*FDI value 2022-FDI value 2015*	*Absolute increase/FDI value 2015*100-1*

Add your results to the table below. [4 marks]

Country/Region	Value			
	Changes in the number of companies	FDI Value pro company (2022)	Absolute Increase	Percentage increase
Hong Kong, China	*139 265*	*≈3*	*7 369,9*	*88,44*
Indonesia				
Malaysia				
The Philippines				
Singapore				
Republic of Korea				
Taiwan				
United Kingdom				
Germany				
France				
Spain				
Sweden				

Each column worth 1 mark with the correct numbers.

E.2.2. Mapping: Based on your calculations, visualise the data in the map below. Sketch a cartogram that depicts your findings using all the available data. [6 marks]

Evaluation aspects:
graphic methods used - does it include a combination of presentation;
does the chosen visualisation contribute to the aim of this map
how many variables are depicted - did the contestant manage to use at least two visual methods;
is it easy to read the map
does it include all mandatory elements - legend, title

E.2.3. Evaluate your findings and specify the types of countries based on the map and your data. Add one example to each category. [4 marks]

Example: types created based on increase in FDI volume and company increase, differentiated by geographical regions 1. *Developed country; high increase* 2. *Developed country; lower increase* 3. *Developing country; high increase* 4. *Developing country; lower increase*
Example: types defined by the country's relation to China, including their investment patterns. 1. *Countries in the vicinity of China with huge dependency* 2. *Countries in the vicinity of China with low dependency* 3. *Countries in the West with high Chinese dependency* 4. *Countries in the West with low Chinese dependency* *All answers here depends on the map*

E.2.4. Discuss the effects of FDI in the recipient countries. What are the positive and negative effects of investments from China? List and explain two of each. [4 marks]

+	-
increasing economy; *increasing employment;* *developing infrastructure;* *improving international relations;* *stronger connections to the East;* *All must be discussed*	*increasing dependency;* *fady financial contracts and loans;* *possibility of bankruptcy;* *negative international reputation of China;* *investment decisions are foremostly advantageous for China, only secondly for the recipient country;* *All must be discussed*

Section F: 'I get a little bit Genghis Khan' [18 marks]

This task will lead you to one of the world's most extraordinary countries, with living nomadic traditions and endless landscapes.

F.1. Transport Infrastructure

Figure F.1. in SB compares the road infrastructure per capita in Ulaanbaatar to the national average. In 2021, Ulaanbaatar had about 662,644 registered vehicles for a population of roughly 1.5 million. Use these data to figure out the following. [2 marks]

F.1.1. Vehicle density: Calculate the number of vehicles per 1,000 people in Ulaanbaatar.	*442*
F.1.2. Road length estimate: Using Fig.1, estimate the total length of roads in Ulaanbaatar in km.	*6000*

Make your calculations here!

Vehicle Density: Ulaanbaatar's 662,644 vehicles for ~1,500,000 people yields about 442 vehicles per 1,000 people. Calculation: $\frac{662{,}644}{1{,}500{,}000} \times 1000 \approx 442$ *vehicles per 1000 residents. (Around 0.44 vehicles per person, a high ownership rate.)*

Road Length Estimate: With 4 km of road per 1,000 people (SB Fig. A.4), Ulaanbaatar's total road length is roughly 4 km × 1,500 (thousand) = ≈6,000 km of roads. (1.5 million people ÷ 1000 = 1500 units; 1500 × 4 km = 6000 km.)

F.1.3. What is the reason behind the large gap between the figures of the capital city and the rest of the country? [1 mark]

population density outside Ulaanbaatar is extremely low in Mongolia

F.1.4. Briefly discuss one major urban challenge that results from the combination of many vehicles and limited road infrastructure in Ulaanbaatar. [3 marks]

traffic jams
air pollution
inequal access to urban amenities, jobs etc.

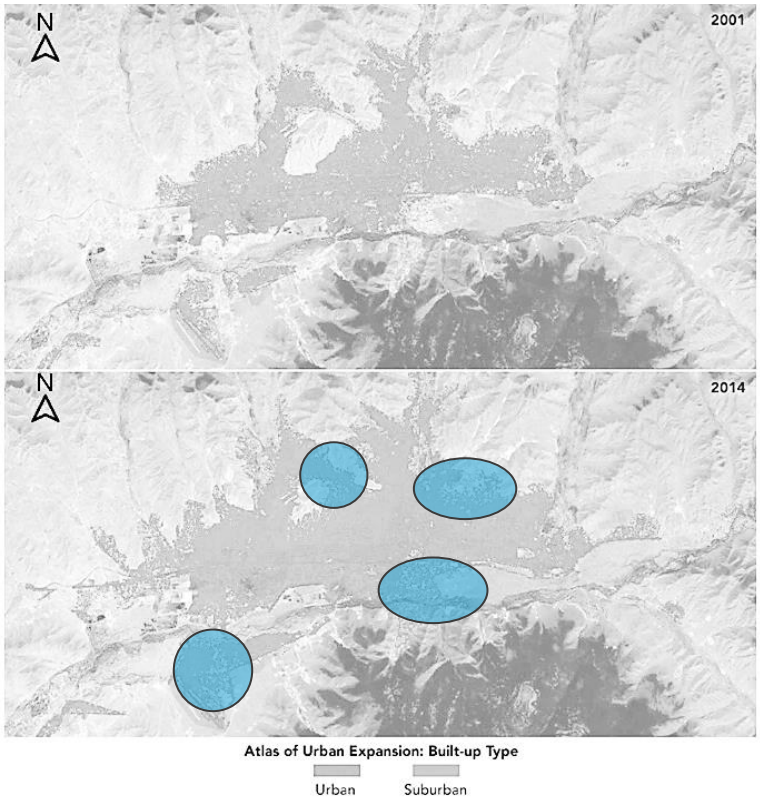
F.2. Urban Fabric and Development Challenges

Study SB at F.2.1 and F.2.2. Think about the major challenges that arise from the coexistence of these two urban forms – the traditional informal settlements and the planned city. Name two infrastructural, two social and two environmental challenges, and give the most important characteristics of each. [6 marks]

F.2.1.1.	*1. Social & Infrastructure Challenge* *Problem What's Happening* *1.Inequal access to services Ger area residents often have no running water or sewage* *2. Poor heating systems Ger homes burn coal, which is costly and unsafe* *3. Lower education & job access Ger districts have fewer schools or workplaces nearby* *4. Poverty and fewer job chances Many migrants to ger areas are unemployed or underpaid* *5. Social separation There's a big gap between lifestyles in ger and apartment areas*
F.2.1.2.	*2. Environmental Challenge* *Problem What's Happening* *1. Air pollution from coal Ger homes use coal stoves, creating smoke and PM2.5* *2. No paved roads Dirt roads cause dust and block ambulance/school access* *3. Traffic jams Too many cars from spread-out areas, bad public transport* *4. Sprawl into nature Ger areas spread into hills and flood zones* *5. Weak waste and sanitation Many areas lack garbage pickup and toilets*
F.2.1.3.	*answers should be nonredundant – we didn't accepted heating with coal for both environmental and infrastructural challenge, only marked it in one category*
F.2.1.4.	*two social, environmental and infrastructural challenge required, three social, two environmental and one infrastructural challenge worth only 5 marks.*

F.3. Urban growth in Ulaanbaatar

F.3.1. Study the graph and map provided in SB F.3.2. Indicate two areas on the map where the city expanded between 2001 and 2014. (Do it here, but a colour map is available in the SB!) [2 marks] *it doesn't matter in which map the circles were drawn, only the locations worth!*



F.3.2. Give two possible reasons why those directions were suitable for expansion. [2 marks]

elevation - new districts were built between mountains
access to water
closer areas to main roads

F.3.3. Name two challenges that come from this kind of outward urban growth. [2 marks]

difficulties to provide proper amenities, services
increasing traffic
increasing environmental burdens (air pollution, waste management etc.)
decreasing proportion of green areas
increasing social and financial inequalities

THE END