HunGeoContest.org

15th Hungarian Geographical Contest 2023/24

2nd Round

Written Test

Question and Answer Booklet

Answers

12 January 2024

Password: .....

Date of birth: .....

Nemzeti Kulturális Támogatáskezelő
Kulturális és Innovációs Minisztérium
Nemzeti Tehetség Program

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 letter 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 **120 points.** Each section has a different maximum value:

A	24
B	16
C	18
D	22
E	18
F	22

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.

5. Only the required number of answers (reasons, examples etc.) will be accepted in the order 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!

PW:

A. *"At dawn in silence moves the mighty stream…" (Henry Van Dyke)* *[24 points]*

A.1.	Look at the pictures at A.1.1 and 2. in the Source Booklet (hereafter referred to as SB)! One of the valleys depicted is formed by a glacial, and the other one is formed by river erosion			points
A.1.1.	Which picture illustrates the effect of the glacial erosion? Mark it!	1	**2**	0.5
A.1.2.	Based on the pictures, name three differences between the two types of valleys!			3.0
	V-shape, U-shape			
	Glacial valleys often have valley steps and overdeepenings filled with lakes			
	Glacial valleys often have hanging valleys connecting. Waterfalls are also common			
A.2.	*Moraine is an accumulation of unconsolidated debris (regolith and rock), formerly transported by a glacier (or ice sheet).*			
A.2.1.	There are more possible classifications of moraine. Study picture 2.1. and pair the numbers on the picture with the types given here			2.0
	a. Recessional moraine	2		
	b. Medial moraine	1		
	c. Lateral moraine	4		
	d. Ground moraine	3		
A2.2.2.	The morphological form labelled No. 4 creates a significant ridge high over the level of the glacier's surface. Explain shortly how it was created! When might it happen?			2.0
	Glaciers change their size and the volume of ice according to climatic conditions. The side moraine depicted is much higher than the current surface of the glacier; it had to happen in an unusually cold period (Little Ice Age)			

A.2.3.	Glacial erosion and accumulation have formed several lakes in Europe. Select the lakes with glacial origin from this list (mark Y/N). Pair the lakes with the letters of the map A.2.3. in SB!	Map label (A-H)	glacial?		8.0
	1. Lake Garda	G	**Y**	N	
	2. Lake Vättern	E	**Y**	N	
	3. Ijsselmeer	A	Y	**N**	
	4. Lake Geneve	C	**Y**	N	
	5. Lago Maggiore	D	**Y**	N	

	6. Lake Constance / Bodensee	B	**Y**	N	
	7. Lake Skadar / Shkodra	H	Y	**N**	
	8. Lake Wörth / Wörthersee	F	**Y**	N	

A.2.4. If you have found all the glacial lakes, you probably would be able to give three common characteristics of these types of lakes! — 3.0

1. Typically elongated, following the form of the former glacier
2. They are quite deep
3. To be found in mountain region and areas formerly covered by land ice sheet
4. Closed by terminal moraine, often with an important city / major river

A.2.5. Switzerland is sometimes described as the "Water Tower of Europe". Melted water from the Swiss glaciers (all located in the southern part of the country) is transported by four different big rivers to four different seas. Name the rivers/seas! — 4.0

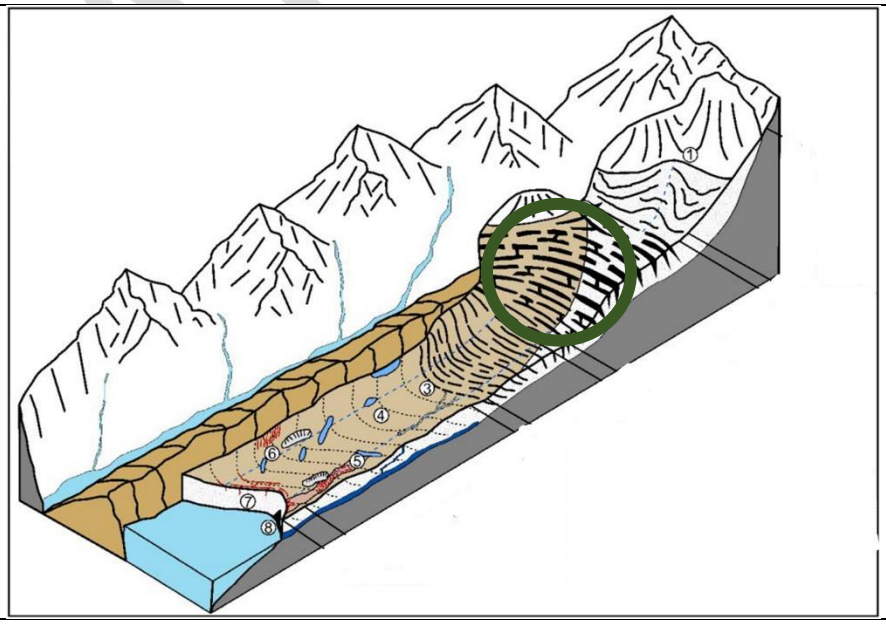
	River	Sea
1.	Rhone	Mediterranean Sea
2.	Rhine	North Sea
3.	Po	Adriatic Sea
4.	Danube	Black Sea

A.2.6. Read the poem in the SB! This was written by an American poet who spent years in Europe serving as an ambassador and travelled to Switzerland too. This poem was created in Zermatt in 1872.

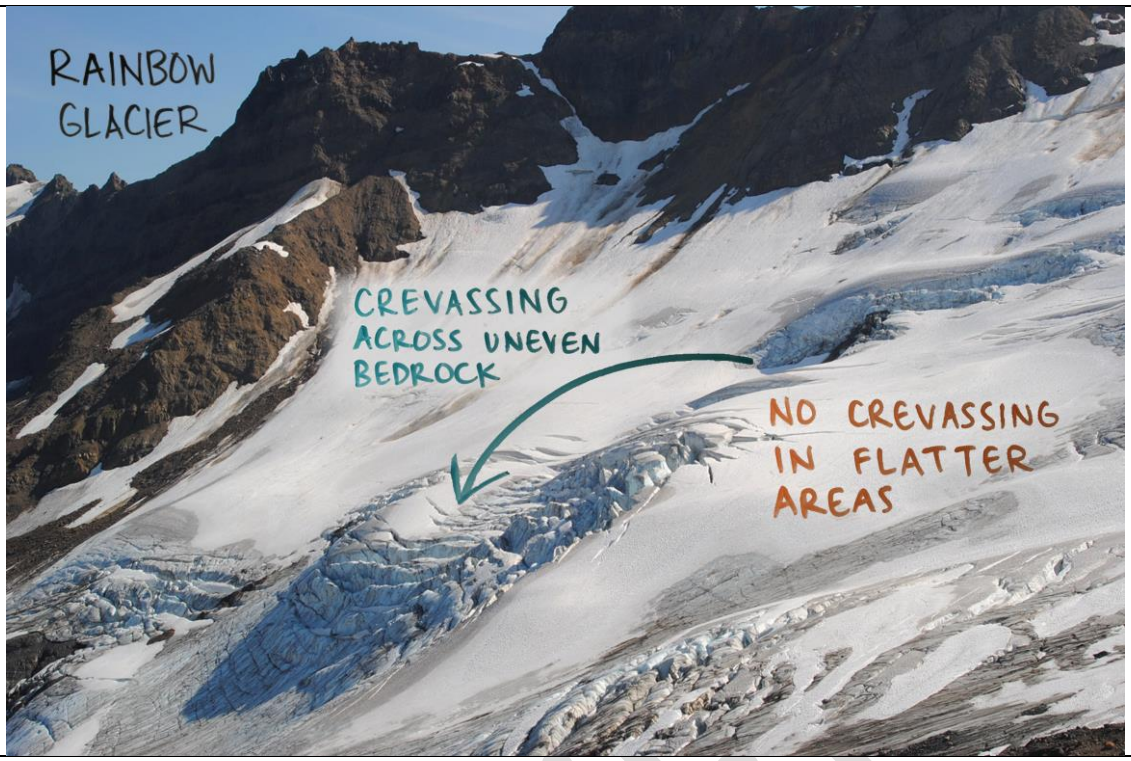
1. Actually, it is quite a poetic but exact description of a glacier. Could you explain what crevasses are? How are they formed? — 1.0

A deep open crack that forms in a glacier or ice sheet. By extension of the ice, they generally form where a valley becomes steeper

2. Mark the crevasses on this diagram! — 0.5



PW:


RAINBOW GLACIER
CREVASSING ACROSS UNEVEN BEDROCK
NO CREVASSING IN FLATTER AREAS

B. *"Since global warming Eskimos now have twenty different words for water." (John O'Farrell)* [16 points]

B *Attribution science explains the link between climate change and particular extreme weather events, measuring how ongoing climate change affects certain extreme weather events. It highlights which events have been likely influenced by anthropogenic climate change and which ones have likely occurred due to natural climate variability.*

B.1. For the following events, attribution scientists have all found an attribution link with climate change. Match the events in the table with the letters on the map in SB B.1. (A-J) and the number of the relevant descriptions below. Small details may be rather important! 8

Event	*Letter*	*No.*	
1. Wildfires, 2019-20	J	6	
2. Drought, 2022	B	5	
3. Storm, 2023	I	7	
4. Typhoon, 2019	E	3	
5. Extreme monsoon, 2022	C	1	
6. Floods, 2021	F	9	
7. Wildfires, 2023	A	8	
8. Heatwave, 2020	H	2	

1. Climate change was found to have made the intensity of the rainfall during this event around 50% more likely. The floods following the event affected at least 33 million people. Over 1,500 people lost their lives, while nearly 1.7 million homes and nearly 270 bridges were destroyed. 180,000 km^2 of cropland was destroyed, including 45% of cotton crop, one of the country's key export crops.
2. This event would have been almost impossible without climate change. The event led to diverse impacts from wildfires, permafrost thaw and pest invasion. It happened in the same year as the global COVID-19 outbreak.
3. Climate change made the extreme rainfall during the event at least 67% more likely. Around USD 4 to 10 billion of insured losses that occurred during the event can be attributed to climate change. While the country places emphasis on protecting the population from several disasters, such as earthquakes, the event led to the death of at least 100 people.
4. Climate change made the likelihood of this event at least 20 times more likely. The event has impacted shipping routes across the continent due to low water levels, threatening industrial production in an industrial heartland that relies heavily on riverine transport for raw materials. Agriculture and energy production were also among the heavily impacted sectors. The overall losses caused by the event across economic sectors were estimated to be at least USD 20 billion.
5. The weather conditions that facilitated this extreme event were found to be 30% more likely due to climate change. At least 3 billion animals - many of which only live on this continent – were killed or displaced during the event.
6. Climate change was found to have made the event 50 times more likely and 50% more intense. The floods following the event, partly caused by the rupture of dams, killed at least 4,300 people in a country (a fallen state) divided between two administrations. The effects were devastating because the region is usually extremely arid.
7. Climate change was found to have doubled the likelihood of weather conditions influencing the occurrence of these extreme events. Across the entire country, nearly 18 million hectares were affected by these extreme phenomena, and as a consequence, around a third of the neighbouring country's population was put on air quality alerts.

	8. Climate change made the heavy rainfall that facilitated this event in a tri-border region between three countries 3-19% more likely. The event led to the loss of over 200 lives, although local authorities have carefully created plans for risk management, and well-equipped rescue teams are available as well.	
B.2.	Besides extreme weather events, climate change also influences slow-onset events. Study map in SB at B.2!	0.5
B.2.1.	Which phenomenon is depicted on the map? — Sea level rise	
B.2.2.	Define the two ways in which climate change influences this phenomenon!	1.0
	1. Thermal expansion: as the oceans warm, seawater expands, causing the water levels to be higher.	
	2. The melting of ice sheets and glaciers also increases global sea levels.	
B.2.3.	Based on the map, name three regions affected extremely by this phenomenon	1.5
	The highest projected water levels are 5-9 metres based on the map. The areas affected by this include: significant parts of Alaska and the Labrador Peninsula's coastline, and the east coast of the USA. Parts of the northeastern coast of Brazil and the southern coast of Argentina. The British Isles and the western coast of Europe. Some parts of the northeastern coast of Russia, coastline of the Sea of Okhotsk, the east coast of China, areas around Mumbai in India, significant parts of the northwestern and some part of the northeastern coast of Australia.	
	Anything that was red or dark orange in the map could be accepted.	
B.2.4.	With the same change in environment, social risks could be quite different. Select the region from your previous answer with the highest social risk. Justify your choice shortly!	2.0
	The poorest region that was mentioned in B.2.3. The answer should include the financial deficits of the mentioned countries. or in case of relatively (or totally) developed regions and countries, demographic arguments, like high population density are correct.	
B.2.5.	Higher risk means higher costs – name three ways how this particular phenomenon (as in B.2.1.) increases the expenditures of the affected societies	3.0
	All expenditures could be accepted, that include building projects to protect the population. All expenditures could be accepted that include education of the society to be ready in case of high tide Insurances and renovation costs also could be accepted.	
	Personal expenditures of the affected people cannot be accepted!	

C. *"Hot town, summer in the city/Back of my neck gettin' dirty and gritty" (Joe Cocker)* *[18 points]*

C	*Urban Heat Islands (UHI) is an effect of urbanisation, a positive anomaly in temperature caused by the particular conditions created in densely built areas*		points
C.1.	**Select the correct words!**		3.5
C.1.1.	An urban heat island (UHI) is a metropolitan area that is significantly **X warmer/** □ cooler than its surroundings. According to the EPA, many cities experience air temperatures up to 10°F (5.6°C) **X warmer/** □ cooler than the surrounding natural land cover. This temperature difference is typically more pronounced during the **X night /** □ day than at the □ night **/ X day** and more significant in summer/**winter** than in **X summer /** □ winter. It is most apparent when winds are **X weak /** □ strong**.** The leading causes are changes in the land surface by urban development and waste heat generated by energy use. As population centres expand, they tend to alter larger land areas, leading to a corresponding **X increase /** □ decrease in average temperature.		
C.1.2.	**Simple choice. Mark the correct answer!**		4.0
C.1.2.1.	**How do cities contribute to the heat island effect?**		
	a. By generating heat through air conditioning, burning fossil fuels, and other similar occurrences	A	
	b. By reducing wind speeds	B	
	c. By trapping heat	C	
	d. All of the answers are correct	**D**	
C.1.2.2.	**How do asphalt and concrete contribute to urban heat island effects?**		
	a. By absorbing the sun's energy	**A**	
	b. By forcing the evaporation of water	B	
	c. By providing shade	C	
	d. By reflecting most of the sun's energy	D	
C.1.2.3.	**Based on the figures (see C.1.2. in SB), which of the following has the highest impact on UHI reduction?**		
	a. Vegetation	A	
	b. Buildings	B	
	c. Water surfaces	**C**	
	d. All of the above	D	
C.1.2.4.	**What are the major impacts of UHIs?**		
	a. Increased energy consumption	A	
	b. Elevated emissions of air pollutants and greenhouse gases	B	
	c. Compromised human health and comfort	C	

	d. All of the above	**D**	
C.2.	**Observe the figures in SB at C.2. about the cities of New York and Tirunelveli (India)**		
C.2.1.	**Can you identify any patterns connecting temperature and vegetation or land use? Please describe three of these connections.**		3.0
	1. Areas with higher proportion of urban vegetation (darker green) the temperature is cooler. **2. Where vegetation is dense, temperature is cooler, sparsely planted vegetation also results in higher temperatures.** **3. When urban housing designs let the winds flow, it also decreases the temperature. Also, vegetation makes urban landscapes more permeable, which cools the air.** **4. Densely built areas capture heat.** **5. Agricultural cultivation increases temperature, as monocultural crops have sparsely planted vegetations. Also, soil surfaces heat up quicker than green surfaces.**		
C.3.	**Classify the factors of UHI into three categories!**		3.0

C.3.1.	***Factors***	**Fix**	**Modulator**	**Manageable**	
	City location (climate, topography, rural surrounds)	X	☐	☐	
	City metabolism (energy/water use, waste, emissions)	☐	☐	X	
	City size (size, density of land use)	☐	☐	X	
	Time (day, season)	☐	X	☐	
	City form (materials and fabrics, structure, building cover)	☐	☐	X	
	Weather (wind, cloudiness, temperature, radiation, etc.)	☐	X	☐	

C.3.2.	*Study pictures in SB (C.3.). These figures demonstrate one of EPA's (U.S. Environmental Protection Agency) recommendations for communities to invest in mitigating the UHI effects.*	
C.3.2.1.	**Name the recommendation!**	0.5
	Install green or cool roofs.	
C.3.2.2.	**How does this affect the formation of the urban heat island, or how is it capable of mitigating its effects? Describe it shortly!**	1.0
	Trees and other vegetation lowers surface and air temperatures by providing shades and cooling through evapotranspiration.	

C.3.2.3.	**What other recommendations could we make to reduce UHI? Name three potential actions for cities!**	3.0
	1. Plant trees and increase generally urban vegetation. **2. Change land use/land cover.** **3. Adopt smart growth solutions, like the following:** **a. bioclimatic architecture** **b. sustainable infrastructure** **c. sustainable mobility** **d. green taxes** **e. eco-neighbourhoods** **f. green corridors** **smart growth solutions should have been shortly explained.**	

D. *"Human trafficking is an open wound on the body of contemporary society" (Pope Francis)* *[22 points]*

D.1.	***Human trafficking**, also known as trafficking in persons, is a crime that involves compelling or coercing a person to provide labour or services or to engage in commercial sex acts. The coercion can be subtle or overt, physical or psychological. Exploitation of a minor for commercial sex is human trafficking, regardless of whether any form of force, fraud, or coercion was used.* *UN's Sustainable Development Goals also target to end human trafficking. In order, a report was created during the last decades, to learn challenges and ease them properly. The Global Report on Trafficking in Persons provides global and regional data and evaluation of the means, volumes, and forms of human trafficking. In the following task, you will study sources and answer questions about human trafficking.*	
D.1.1.	Study source D.1.1. in the SB. According to the map, name three countries which were safe according to the number of human trafficking victims.	1.5
	Any countries, that are coloured with light yellow.	
	Countries with no data could not be accepted!	
	Kazakhstan, Angola, Colombia, Norway etc.	
D.1.2.	List three countries which were extremely dangerous during 2021.	1.5
	Any country with darker reds and oranges could be accepted.	
	Countries with no data could not be accepted!	
	Great Brittain, India, USA, Burkina Faso etc.	
D.1.3.	Study the map and the chart in SB (D.1.1., D.1.3.). List three countries where the map and the chart depict contradictory results. Explain shortly the possible reasons for contradiction according to your knowledge.	6.0

Name of the country	Possible reason, argumentation
Argentina Mexico Nigeria Uzbekistan Peru any of the countries, that shown different values comparing them in the map and in the chart.	The following reasons were generally accepted: - corruption of the state administration - shift in volumes of human trafficking in the two years due to COVID pandemic - scale of the map and the chart was different by the age groups, in some countries trafficking in persons focuses on children/adults - low efficiency of local authorities

D.2.	Study table D.2. in SB. Use the data provided and draw a thematic map which depicts regional trends in human trafficking. Use labels, colours, icons, or any visual methods that express regional differences. Use the blank map below. Create your thematic map on the next page using the outline map provided. ***Please note you do not need to use every data; select three categories for every region!***	10.0

D.3.	Study your own map and sources D.3.-D.5. in SB. Decide whether the following statements are true (T) or false (F).			3.0
	A general decrease in the number of female victims was experienced globally because fewer cases have occurred due to sexual exploitation since 2007.	T	**F**	
	A significant increase in female forced labour was visible in South Asia from 2019 to 2020 because the form of exploitation requires female trafficking.	T	**F**	
	Although the occurrence of domestic human trafficking in South Asia decreased by a high percentage, 9 out of 10 cases are still domestic trafficking cases in the region.	**T**	F	
	The highest number of detected victims globally was experienced in South Asia.	**T**	F	
	The main difference between South Asia and East Asia is the fact that the trafficking of male victims in South Asia is more frequent.	T	**F**	
	The number of persons convicted of human trafficking decreased in South Asia because, generally, the number of detected cases has decreased.	**T**	F	
D.2.				
	Create legend here			
	• **Map should include surface colouring AND pictograms, charts or any mapping methods, that create a cartogram.** • **Map should be easily understood, the colours should imply what they aim to depict.** • **Legend should be correctly edited and it should punctually describe the different visible elements of the map.** • **Map should have a title.** • **No empty spaces should be left in the map.** • **There were no regions that weren't covered with data, thus every continent, all surface should have beed included in the drawing.** • **We incuired a complex visualisation of the data, thus we expected to include at least two different visual methods in this task.**			

E. *"Suburbia is where the developer bulldozes out the trees, then names the streets after them" (William E. Vaughan)* *[18 points]*

E	*For almost a century, suburbanisation has become the most impressive spatial development trend in the United States. Hundreds of books, TV shows, and great movies (like "American Beauty" or "Truman Show") depict and sometimes draw attention to the contradictions of suburban life. After the turn of the Millennium, some new trends emerged, and the picture of the idyllic suburban life changed.*		points
E.1.	How it began… Levittown in Pennsylvania has been among the first planned US suburbs, founded in 1952. Study pictures in SB (E.1.1-4) and give four items, why suburbs became so successful in the 1950s and 1960s!	*No. in SB*	4.0
	1. Welfare society **2. The American dream of individual housing, cheap houses** **3. Low interest rates and long economic prosperity** **4 Ethnic homogeneity, white and middle-classed**		
E.2.	A new trend has emerged in the American suburbs in the last decades. Find out more by filling in the text with the missing words below!		6.0
E.2.1.	There is no word more --**2**-- in the urban vernacular than "suburb." For most of us, those two syllables conjure a very specific type of place, with a specific kind of people comfortably living there. "We think about suburbs in one way," says Elizabeth Kneebone, a fellow at the Brookings Institution's Metropolitan Policy Program. "We have a very stereotypical view of suburbs as--**5**--, affluent, Leave-It-To-Beaver type places." And yet, over the last decade, suburbs have increasingly become home to America's poor. Between 2000 and 2011, the population living in American cities ---**1**--the poverty line increased by 29 percent. During that same time, across the country in the suburbs of metropolitan areas as diverse as Atlanta and Detroit and Salt Lake City, the ranks of the --**7**--- grew by 64 percent. Today, more poor people live in the suburbs (16.4 million of them) than in U.S. cities (13.4 million), despite the ---**6**----that poverty remains a uniquely ----**12**----problem. As Kneebone and colleague Alan Berube have written before for Cities, this geographic shift has been no quirk of the----**8**---It began before the ---**3**---crashed, and will inevitably tax communities unaccustomed to housing the poor well into and beyond the recovery. The changing shape of poverty is more ---**11**---than an economic downturn. "Often when we talk about rising ----**10**---poverty, people automatically think about, 'Well, who's moving into these neighborhoods?'" Kneebone says. "But it's not just people		

	moving in. There have been two downturns in the last decade, and long-running structural changes in the economy, finding a lot of ----**4**----suburban residents growing poorer, ----**9**----the economic ladder."	

1. below	5. middle-class	9. slipping down
2. evocative	6. perception	10. suburban
3. housing market	7. poor	11. systemic
4. long-time	*8.* recession	*12.* urban

E.3.	Study map and chart in SB at E.3!	
E.3.1.	Suburban poverty does not have an equal impact in the entire United States. Give four relevant statements describing the pattern of suburban poverty in the country!	4.0
	1. Northeast metro areas are moderately touched by the phenomenon	
	2. In the south, both urban cores and suburbs have growing poverty rates	
	3. There are some extremely intensive locations in generally prospering regions, for example, in Florida	
	4. Generally, the region of the Midwest has the highest growth rates in poverty	

E.4. Maps in SB E4 show patterns of poverty in the San Francisco Metropolitan Area (Bay Area). Study maps, and do not forget the other sources that were given earlier to task E. 4.0
Mark A – If both statements are true, it is a casual relation by its justification.
Mark B – If the statement is true, but it has no causal relation with the justification.
Mark C – If the statement is not true, but the justification itself could be true.
Mark D – If the statement is not true, and justification follows a false logic.
(we **highlighted** the border between the two parts of the statements)

1.	The growth of poverty rates appears in every suburb around the Bay **because** there is an overall growth in the number of poor people in the USA.	A	B	**C**	D	
2.	Suburbanisation of poverty gives a new scale to social segregation **because** it creates a pattern of poor and rich suburbs.	**A**	B	C	D	
3.	Poverty rates in suburbs only grow in less favourable locations because the generation of the Millennials and Generation Z start their own adult life later than the Baby Boomers and Gen. X.	A	**B**	C	D	
4.	The growing poverty in suburbs happens exclusively because of the decline of the middle classes **since** current generations are no longer able to pay the costs of higher education.	A	B	C	**D**	
5.	Working-class minorities are under-represented in these quickly declining communities because suburbs used to be racially segregated in the 1960s and 70s.	A	B	**C**	D	
6.	The city of San Francisco, as the Metropolitan area's core, has a declining poverty rate because gentrification results in the moving of highly qualified young adults to the downtown area.	**A**	B	C	D	
7.	The concentration of poor people in the suburbs challenges the social system because the ecological costs of the suburban lifestyle are high.	A	**B**	C	D	
8.	Lower-status people may be trapped in the suburbs **because** they have limited access to public transit, and therefore their job opportunities are poor.	**A**	B	C	D	

F. "A mathematician is a device for turning coffee into theorems." (Pál Erdős) [24 points]

F	*Wheat, soybeans, corn and rice may be humanity's most important agricultural products, but the world will not roll without some inspiration to the body & mind. Coffee is a possible and globally legal solution.*		points
F.1.	Look at the pictures at D.1.1-5. in SB! Pair the global production maps of one of these products!	*No. in SB*	2.0
F.1.1.	Cocoa beans	**5**	
	Coffee	**1**	
	Pineapple	**3**	
	Tea	**2**	
F.1.2.	One of the maps remained unpaired – what is the unusual agricultural product it depicts?		0.5
	Cocaine / coca leaves.		
F.2.	Study the table in the SB at D.2. Coffee production and export have different significance in the affected countries.		
F.2.1.	Create a diagram to show the significance of the coffee business in the countries listed. Use two different data for every country! Make your calculations in the empty papers in the SB (you do not need to submit them) and draw your chart here (next page). Take care of details and clear, transparent representation!		8.0
F.2.2	Based on your chart, which two countries would you name as the most dependent economies on the coffee business?		1.0
	Developing countries with a high production and export rate of coffee could be correct.		
	Honduras, Ethiopia		
F.2.3.	There are countries listed with no own raw coffee production, but significant share from world coffee export. How could you explain it?		1.5
	Added value, processed products, roasting, packaging, transnational companies		
F.2.4.	Coffee-dependent countries – like other resource-oriented economies – have to face some challenges. What are the typical problems for such economies? Name three!		3.0
	Resources and raw products have small added value in their price at the world market		
	Prices may change quickly, and in the long run, the terms of trade change in the favour of the industrial countries, not the resources-based economies		
	Weather and climate impacts, in many cases, centralisation of the market, oligarchical structures, etc.		

Draw your chart here!

Chart should fit to the aim of visualisation.
Chart should be easy to read and easy to understand.
Chart should be big enough.
Chart should be evident on first sight.
A legend should be useful, which explains some of the data (if needed).
It was mandatory to use at least two variables.
Some calculations could be necessary, but the primary object was to understand these data and to be able to perform a good visual method.
Using colours was not mandatory, although the best charts included at least two different colouring.

F.3.1.	Study pictures and the map in SB D.3.! All are related to the coffee sector of Ethiopia, where the coffee originates. Give four items that may be characteristic of local coffee production!	4.0
	To provide enough water for plantations, climatic conditions only suitable at some parts of the country	
	Steep slopes, soil erosion	
	Dominance of smallholders, female workforce	
	Landlocked country, difficulties in exporting to the world market	