



TÜRKİYE BİLİMSEL VE TEKNOLOJİK ARAŞTIRMA  
KURUMU BİLİM İNSANI DESTEK PROGRAMLARI  
BAŞKANLIĞI

32. BİLİM OLİMPİYATLARI -2024

İKİNCİ AŞAMA SINAVI

ÖĞRENCİ

COĞRAFYA

- 1) Aşağıdakilerden hangisi "iklim" terimini en iyi şekilde tanımlar?
  - A) Belirli bir bölgedeki atmosferin günlük koşulları
  - B) Belirli bir bölgedeki hava desenlerinin uzun vadeli ortalaması
  - C) Hava durumu ve atmosferik olayların incelenmesi
  - D) Kısa bir süre içinde bir bölgedeki aşırı hava olayları
  
- 2) Hangi insan faaliyeti, iklim değişikliğine yol açan sera gazlarındaki artışa birincil katkıda bulunan etkidir?
  - A) Ormanların yok edilmesi ve arazi kullanımındaki değişiklikler
  - B) Volkanik patlamalar
  - C) Güneş radyasyonundaki doğal değişimler
  - D) Okyanus sirkülasyon desenleri
  
- 3) Dünyadaki volkanların dağılımını göz önünde bulundurarak, aşağıdaki ifadelerden hangisi doğrudur?
  - A) Önemli bir kısmı levha sınırlarına paraleldir
  - B) İzlanda'da çok az volkan vardır
  - C) Afrika'nın doğu kesiminde batıya kıyasla daha az volkan vardır
  - D) Okyanuslarda volkanlar bulunmaz

4) Tehlike yönetimi döngüsünde kurtarma, felaket sürecinin hangi aşamasında gerçekleştirilir?

- A) Bir olaydan önce
- B) Olayın etkisinde
- C) Bir olaydan sonra
- D) Risk değerlendirmesinde

5) Dünya kabuğunun ortalama kalınlığı bugünkü durumuna göre iki katına çıksaydı, aşağıdakilerden hangisi beklenmezdi?

- A) Jeotermal alanların sayısı azalır
- B) Volkanik aktivitenin sıklığı artardı
- C) Yeraltı suyu potansiyeli artardı
- D) Daha az deprem olurdu

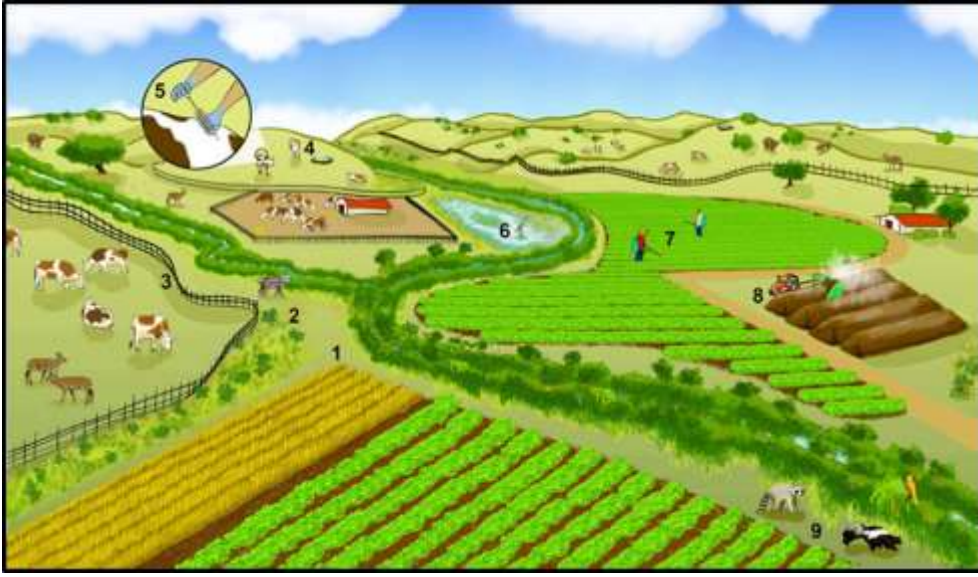
6) Bangkok çevresindeki aşağıdaki yüzeylerden hangisi güneş radyasyonu için en yüksek potansiyele sahiptir?

- A) Kuzey sektörü dik yamaçları
- B) Güney sektörü dik yamaçları
- C) Alçak ovalar
- D) Yüksek ovalar

7) Nüfusun iki katına çıkma süresinin yüksek olduğu ülkeler hakkında aşağıdaki ifadelerden hangisi doğrudur?

- A) Doğum oranları düşüktür
- B) Doğum oranları yüksektir
- C) Doğum oranları sabittir
- D) Ölüm oranları düşüktür

8) Aşağıdaki görselde hangi tarımsal noktaya dikkat çekilmemiştir?



- A) Yaban hayatıyla uyumlu tarımsal faaliyete
- B) Akıllı sulama sistemlerine
- C) Hayvansal gübre kullanımına
- D) Pastoral ve modern hayvancılık faaliyetlerine

9) Aşağıdakilerden hangisi toprağın işlevleri arasında gösterilemez?

- A) Karbon tutma
- B) Gıda ve lif tedariki
- C) Suyu filtreleme
- D) Miras yoluyla parçalanma

10) Drovyanoy'dan yola çıkan birisi önce Tallin'e daha sonra da Kırım'a gitmiştir. Buna göre söz konusu kişi sırasıyla hangi toprak tipleriyle karşılaşmıştır?

- A) Çernezyomlar – Vertisoller – Podzol
- B) Podzol – Tundra – Çernezyomlar
- C) Tundra – Podzol – Çernezyomlar
- D) Tundra – Çernezyomlar – Podzol

11) Aşağıda belirtilen tarım ürünlerinden hangisi daha sürdürülebilir bir tarımsal faaliyet için önerilebilir?

- A) Soya fasulyesi
- B) Sorgum/Darı
- C) Avokado
- D) Palm hurması

12) Aşağıda belirtilen ülkelerden hangisinde ayçiçeği yetiştiriciliği görülmez?

- A) Rusya Federasyonu
- B) Kazakistan
- C) Türkiye
- D) Endonezya

13) 1854 yılında Londra'da kolera salgınına neden olan kirli su pompalarından ölen insanların adreslerini gösteren haritayı oluşturan bilim insanı kimdir?

- A) Roger F. Tomlinson
- B) John Snow
- C) Jack Dangermond
- D) Nate Bannet

14) Tarımsal üretim faaliyetleri kapsamında aşağıdakilerden hangi eşleşme hatalıdır?

- A) Tahıl üretimi ve bundan arta kalan samanın hayvancılık faaliyetini desteklemesi
- B) Kakao üreticisi ülkelerin katma değerli ürünlerden çikolata sanayisiyle yüksek gelir elde etmesi
- C) Büyükbaş hayvancılık faaliyetlerine bağlı olarak bol miktarda gübre eldesi ve kimyasal gübreye bağlılığı azaltması
- D) Muson Asya'sında ormanların palm yağı (hurması) plantasyonlarına dönüştürülmesiyle bu alanlardan daha fazla gelir elde edilmesi

15) Buzulların erimesiyle açılacak yeni deniz yollarının küresel ticaret üzerindeki etkisi değerlendirildiğinde özellikle Kuzey Kutbu'ndaki bu gelişmeler hangi ülkeler arasında ticaret yollarını değiştirecek ve bu değişimin potansiyel jeopolitik sonuçları olacaktır?

- A) Rusya ve Asya ülkeleri arasında artan ticaret
- B) ABD ve Avrupa arasındaki ticaret hacmi artışı
- C) Çin'in Kuzey Kutbu üzerinden Avrupa'ya erişimi
- D) Kanada'nın Kuzey Denizi'ndeki stratejik rolü

16) Küreselleşmenin tarım üzerindeki etkileri değerlendirildiğinde tarım arazilerinin genişlemesinin dünya ekosistemleri üzerindeki uzun vadeli etkileri tartışılmazdır. Tarım arazisi genişlemesinin neden olduğu habitat kayıpları ve bunun biyoçeşitlilik üzerindeki etkileri de göz önüne alındığında, hangi ekosistemler bu durumdan en fazla etkilenmiştir?

- A) Yağmur ormanları ve tropikal ekosistemler
- B) Çölleşme ve yarı kurak alanlar
- C) Tundralar ve kutup ekosistemleri
- D) Karasal ormanlar ve muson bölgeleri

17) İklim değişikliği projeksiyonlarına göre 2100 yılına kadar farklı enlem kuşaklarında sıcaklık artışının ekonomik faaliyetler üzerinde etkileri olacaktır. Özellikle kutup bölgelerinde ekonomik faaliyetlerin nasıl şekilleneceği hangi şıkta doğru verilmiştir.

- A) Tarım ve hayvancılık sektörlerindeki dönüşüm
- B) Balıkçılık ve deniz ulaşımı sektörlerinin geleceği
- C) Yenilenebilir enerji kaynaklarının kutup bölgesindeki rolü
- D) Yeni ticaret yolları ve jeopolitik değişiklikler

18) Küresel karbon salımındaki artışın ekonomik ve çevresel sonuçları vardır. Hangi ülkeler sanayileşme ve karbon emisyonları arasındaki ilişkiyi yönetmekte daha başarılı olmuş ve bu başarıyı hangi yöntemlerle sağlamışlardır?

- A) Japonya'nın enerji verimliliği stratejileri
- B) AB'nin karbon emisyonu azaltma politikaları
- C) Çin'in sanayileşme sonrası yeşil enerjiye geçişi
- D) ABD'nin karbon ticaret politikaları

19) WWF'nin Yaşayan Dünya Endeksi ile ilgili aşağıdaki ifadelerden hangisi yanlıştır?

A) Dünya genelindeki biyolojik çeşitliliğin durumunu ve eğilimlerini ölçer.

B) Sadece memeli hayvan popülasyonlarının ortalama bolluğundaki değişimleri izler.

C) Endeks hesaplaması için dünya çapında binlerce omurgalı hayvan popülasyonundan veri toplanır.

D) Sonuçlar, kamuoyunu ve politika yapıcıları biyoçeşitlilik kaybı konusunda bilgilendirmek için kullanılır.

20) Ekosistemdeki enerji döngüsü ile ilgili aşağıdaki ifadelerden hangisi yanlıştır?

A) Enerji akışı, güneş enerjisinin biyokütle ve besin zinciri yoluyla transferini içerir.

B) Üretim aşamasında, fotosentez yapan bitkiler güneş enerjisini kimyasal enerjiye dönüştürür.

C) Tüketim aşamasında, otçullar ve etçiller enerji elde eder.

D) Her trofik seviyede, enerjinin tamamı bir üst seviyeye aktarılır.

21) Biyoçeşitlilik, ekosistemlerin sağlığı ve işleyişi için kritik öneme sahip olan, bir bölgedeki veya ekosistemdeki canlı türlerinin çeşitliliğini ifade eden geniş kapsamlı bir kavramdır. Bu terim, genetik çeşitlilik, tür çeşitliliği ve ekosistem çeşitliliği olmak üzere üç ana bileşeni kapsar. Biyoçeşitliliğin korunması, ekosistemlerin dengesi, gıda güvenliği, ilaç üretimi ve ekonomik faaliyetler gibi birçok alanda insanlık için hayati önem taşır. Bu bağlamda, biyoçeşitliliğin üç ana bileşeninden biri olan "tür çeşitliliği" aşağıdakilerden hangisini ifade eder?

A) Bir tür içindeki genetik varyasyonları ve bu varyasyonların popülasyon içindeki dağılımını

B) Farklı habitat ve ekolojik süreçlerin çeşitliliğini ve bunların birbiriyle olan etkileşimlerini

C) Belirli bir alandaki farklı türlerin sayısını, bu türlerin dağılımını ve aralarındaki ekolojik ilişkileri

D) Ekosistemlerin işleyişini, dengesini ve bu sistemlerin birbirleriyle olan bağlantılarını

22) Küresel ölçekte biyoçeşitlilik azalmasının nedenleri arasında yer alan "iklim değişikliği", ekosistemleri ve türlerin yaşam alanlarını hızla değiştirmektedir. Bu değişim, sıcaklık artışı, yağış rejimlerinde değişiklikler, aşırı hava olaylarının sıklığının artması ve deniz seviyesinin yükselmesi gibi çeşitli etkileri beraberinde getirmektedir. İklim değişikliğinin biyoçeşitlilik üzerindeki etkileri, farklı ekosistemlerde ve coğrafi bölgelerde çeşitli şekillerde ortaya çıkabilmektedir. Bu karmaşık ve çok yönlü etkileşim göz önüne alındığında, iklim değişikliği ile ilgili aşağıdaki ifadelerden hangisi doğrudur?

A) İklim değişikliği sadece karasal ekosistemleri etkiler; sucul ekosistemler bu değişimden etkilenmez

B) Küresel ısınma, tüm bölgelerde yağış miktarının artmasına neden olur ve bu durum her yerde biyoçeşitliliği olumlu etkiler

C) Deniz seviyesinin yükselmesi, kıyı ekosistemlerini tehdit eder ve bu bölgelerdeki endemik türlerin yaşam alanlarını daraltabilir

D) Aşırı hava olayları, biyoçeşitlilik üzerinde her zaman olumlu etki yaratır ve türlerin adaptasyon sürecini hızlandırır

23) Asit yağmuru çok sayıda soruna yol açar. Aşağıdakilerden hangisi bu sorunlardan biri değildir?

A) Toprağın asitliğini etkileyerek verimliliğin azalmasına yol açar

B) Tarihi eserlere zarar verir

C) Suyun pH seviyesini etkileyerek su canlılarını olumsuz etkiler

D) Orman yangınlarının sıklığını artırır

24) Aşağıdaki fiziksel süreçlerden hangisi doğrudan insan kaynaklı iklim değişikliğiyle bağlantılıdır?

A) Kutuplardaki buzulların erimesi

B) Tektonik plakaların kayması

C) Sıradağların oluşumu

D) Okyanus akıntılarının hareketi

25) In addition to the economic developments following the Industrial Revolution, some problems have emerged, with environmental issues being among them. Based on this, which of the following cannot be considered a global issue?

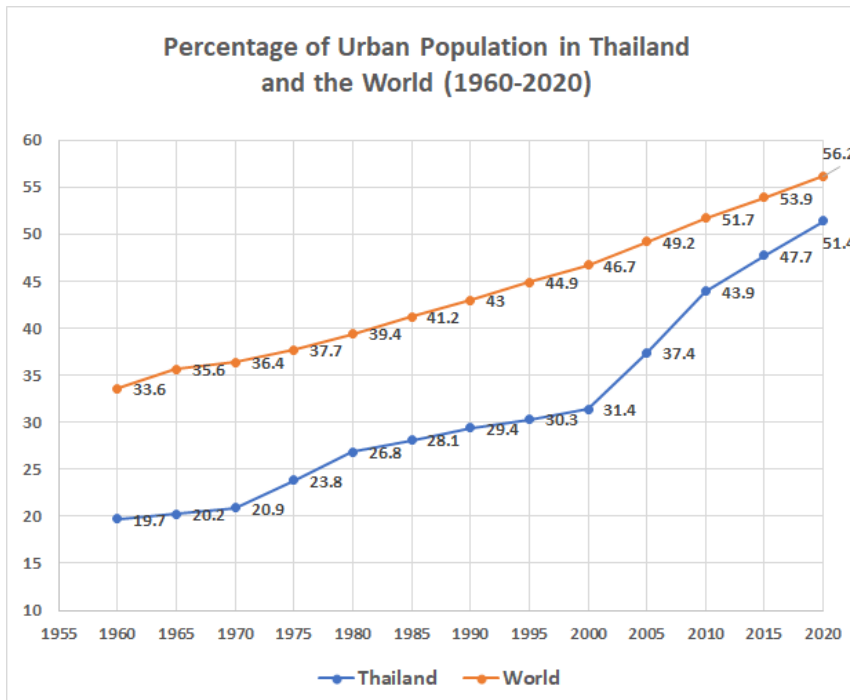
A) Desertification

b) Acid Rain

C) Solid Waste

D) Ozone Layer Depletion

26) Based on the graph showing the urbanization rates of Thailand and the world from 1960 to 2020, which of the following statements is true?



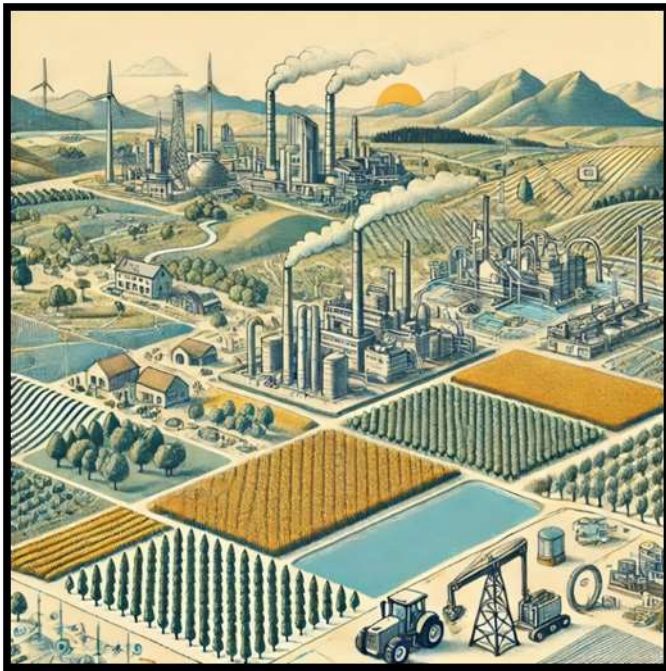
- A) Both Thailand and the world experienced continuous urbanization growth from 1960 to 2020
- B) Thailand’s urbanization rate decreased after 2000, while the world’s urbanization rate continued to rise
- C) The urbanization rate in Thailand was higher than the world's rate in 2020
- D) In 1960, the urbanization rate of the world was over 50 percent

27) Improper land use can lead to various negative outcomes, which can be categorized as meteorological, hydrological, geological, and geomorphological environmental problems. Based on this, which of the following is an example of improper land use?

- A) Livestock farming in meadows and pastures
- B) The presence of industrial facilities in İzmit Dilovası
- C) Urban development in coastal areas following a specific plan
- D) Cultivation of industrial agricultural products in Çukurova



28) Which basic concept of geographical thinking in the context of economic geography is best represented by the image in which agricultural areas, industrial zones, urban structures and natural elements are presented together?



- A ) Territory
- B ) Venue
- C ) Landscape
- D ) Location

29) Nowadays scientists are discussing the concept of the "Anthropocene Era" to describe a period in Earth's history when human activities have had such a significant impact that they have become more influential than natural processes in shaping the planet. An example of this is the widespread presence of plastic waste found not only on ocean floors but even within the glaciers of Antarctica. This observation highlights the profound impact of human actions on the environment.

What is the most significant consequence of human activities during the Anthropocene Era in terms of the environment?

- A) Decrease in global temperatures
- B) Acceleration of natural ecosystem cycles
- C) Increased resource consumption and environmental changes
- D) Reduction in human impact on the environment

30) What is the name given to glacial valleys invaded by the sea?

- A) Fjord
- B) Arete
- C) Nunatak
- D) Cirque

31) The figure below shows the factors affecting the location of economic activities in a region and the effects of economies of scale and economies of agglomeration. Which type of economic activity benefits the most from economies of scale in the formation of these effects?

- A) Primary activities
- B) Secondary activities
- C) Quinary activities
- D) Tertiary activities



32) ..... model describes three phases following a hazard event - relief, rehabilitation and reconstruction.

Which of the following would best fill the blank space?

- A) Reconstruction
- B) Park
- C) Emergency
- D) Restoration

33) Which of the following is not one of the erodible rocks suitable for karst formation?

- A) Limestone
- B) Claystone
- C) Gypsum
- D) Dolomite

34) Considering the transportation and settlement patterns in the colonial economy shown on the map, which of the following statements best explains the primary function of transportation routes in this period?

- A) To facilitate the transportation of raw materials from inland regions to coastal ports
- B) Linking major urban centers to encourage local trade within the colony
- C) To ensure efficient travel between settlements for administrative purposes for colonists
- D) To ease transportation between centers in order to better promote local trade



35) Which of the following is not an element of risk?

- A) Exposure
- B) Hazard
- C) Vulnerability
- D) Resilience

36) The image below shows a geographical reflection of the marked inequalities in the global economy. This line was defined by international economists in the 1980s and highlights the differences in economic, social and technological development around the world. Countries to the north of the line are generally considered to be industrialized, high-income and developed, while countries to the south are low-income, developing and underdeveloped. Which of the following is the line that expresses this distinction?



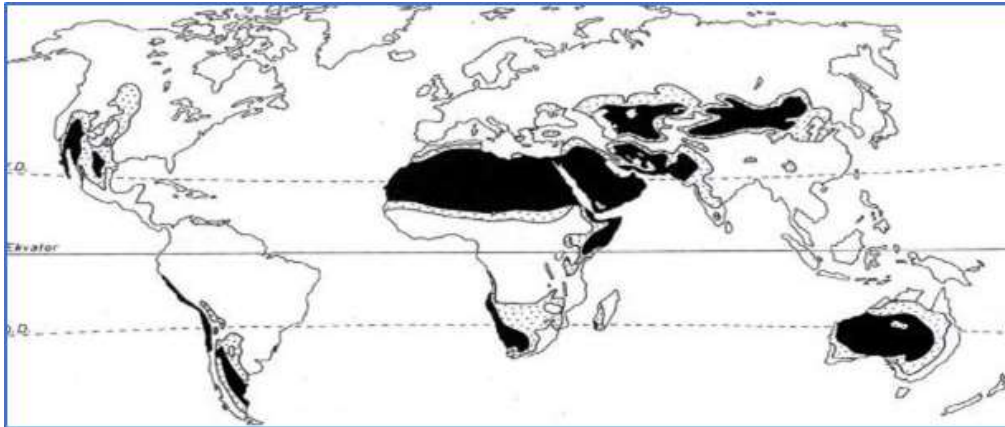
- A ) Gini Coefficient
- B ) Human Development Index (HDI)
- C ) North-South Divide
- D ) Brandt Line

37) “Actions aimed at reducing the severity of an event and lessening its impacts. This can involve direct intervention, such as building design that can withstand earthquakes or hurricanes, or preparing barriers or defensible zones that may slow down or even halt the advance of wildfires.”

Which of the following is the definition of the concept above?

- A) Mitigation
- B) Recovery
- C) Preparation
- D) Response

38) What areas are represented by the black-colored regions on the map above?



- A) Semi-arid areas
- B) Periglacial areas
- C) Glacial areas
- D) Arid areas

39) Tropical rainforests are among the most biodiverse ecosystems on the planet, supporting an incredible variety of plant and animal species. However, the soil beneath these rainforests is often surprisingly nutrient-poor, as the heavy rainfall tends to wash away much of the nutrients. Despite these challenging soil conditions, the trees and other plants have developed specialized adaptations that allow them to thrive in this rich and competitive environment.

What is the primary reason that many trees in tropical rainforests have surface-level roots?

- A) To ensure faster tree growth
- B) The concentration of nutrients in the upper layers of the soil
- C) To allow roots to absorb oxygen
- D) To increase water competition with other plants

40) Which of the following is not one of the key parameters of Hazard?

- A) Magnitude or intensity
- B) Duration of the event
- C) Fragility
- D) Area of extent

41) Which coastal landform is seen in the photo below?



- A) Lagoon
- B) Delta
- C) Cliff
- D) Tombolo

42) Ecosystems are delicate networks that rely on balanced interactions between species and environmental factors. If a disruption occurs in a food chain, it can have far-reaching consequences for the entire ecosystem. Such disturbances might involve the removal of a key species, whether predator or prey, or the introduction of invasive species that throw off established interactions.

How would the ecosystem be most affected if a food chain were suddenly disrupted?

- A) Rapid emergence of new species
- B) Disruption of nutrient cycles and loss of balance
- C) Rapid increase in predator species
- D) Excessive increase in soil fertility

43) Which of Thailand's neighbors is at a disadvantage in sea salt production?

- A) Cambodia
- B) Myanmar
- C) Laos
- D) Malaysia

44) Coral reefs are some of the most diverse and vital ecosystems in the world. They provide a habitat for a wide array of marine life and are considered to be essential for the health of oceans. Despite their importance, coral reefs are under threat due to various environmental pressures such as ocean acidification and rising sea temperatures. Often, coral reefs are referred to as the "rainforests of the sea" due to their extraordinary biodiversity and ecological role.

Why are coral reefs often called the "rainforests of the sea"?

- A) They cover vast areas
- B) They are located beneath the sea floor
- C) They are unique in terms of biodiversity and the ecosystem services they provide
- D) They only support underwater life forms

45) Polar regions, including the Arctic and Antarctic, are some of the most fragile ecosystems on Earth. These areas are particularly vulnerable to the effects of climate change and human activities. Protecting these ecosystems requires a sustainable management strategy that carefully balances the need for economic development with the preservation of these unique environments.

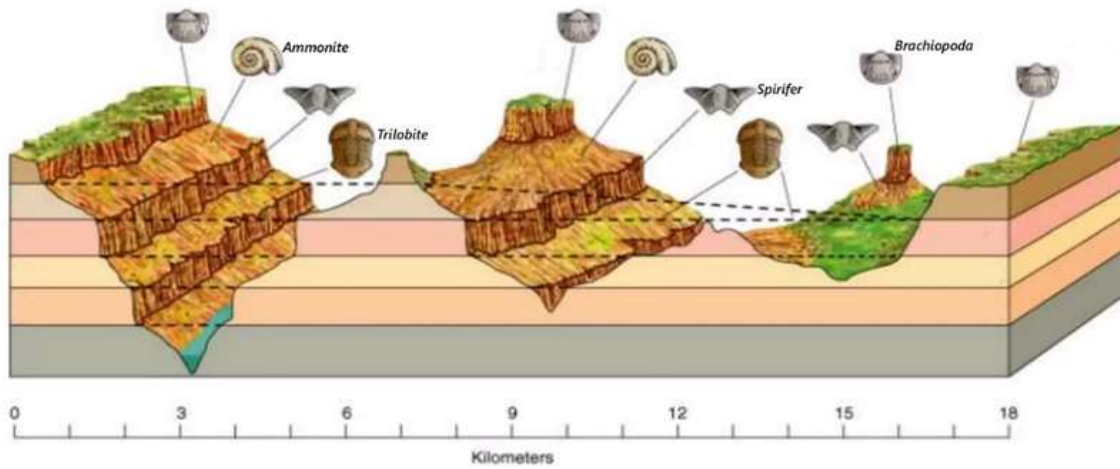
Which "sustainable management" strategy would be most effective in protecting ecosystems in polar regions?

- A) Halting all economic activities
- B) Overexploitation of natural resources
- C) Responsible and cautious use of technology
- D) Increasing tourism

46) Which of the following is NOT a challenge commonly faced during field studies?

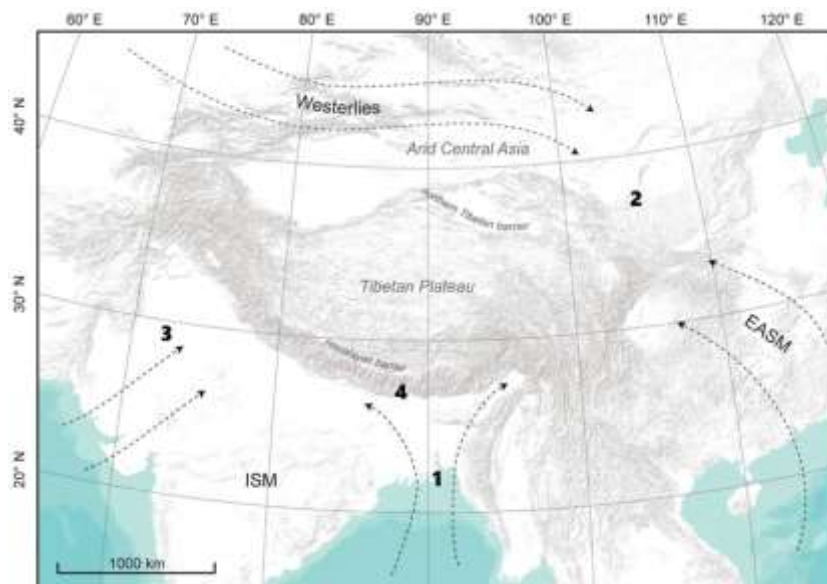
- A) They help map theoretical migration patterns
- B) They allow direct observation of land use, transportation systems, and social interactions
- C) They eliminate the need for GIS analysis
- D) They focus solely on rural areas for comparison

47) Which of the fossils whose locations are marked in the graph below can be said to belong to an older geological period than the others?



- A) Trilobite
- B) Spirifer
- C) Ammonite
- D) Brachiopoda

48) Which of the places marked on the map showing the prevailing wind directions as of July is expected to receive more rainfall than the others?



- A) 1
- B) 2
- C) 3
- D) 4



49) “Placelessness” is a concept introduced by geographer Edward Relph, which refers to the loss of distinctiveness in a place due to the standardization of the built environment and the homogenization of experiences. As globalization spreads and places are influenced by similar developments, architectural styles, and cultural influences, they begin to resemble each other, losing their unique character and identity. This process often leads to the feeling that a place could be anywhere, with no specific connection to its history, culture, or geography.

What does a place lose when it experiences “placelessness”?

- A) Economic development
- B) Its ability to attract tourists
- C) Its unique identity
- D) Its physical geographic features

50) If you were examining a map showing the average life expectancy (for men and women) of the world population in the 2020s, which of the following would you be least likely to see?

- A) The life expectancies of countries bordering the North Atlantic are generally similar to each other
- B) The life expectancies of Sub-Saharan countries are generally similar to each other
- C) The life expectancy in Singapore is higher than in Türkiye
- D) Countries with life expectancies above the world average are mainly concentrated in Europe first, and in the Americas second

51) If we had created a profile following the equator on a world map showing population doubling time, which of the following cannot be said about the information displayed by this profile?

On the profile:

- A) The population doubling time would vary between approximately 22 and 78 years
- B) The shortest doubling times on the profile would be between approximately 22-26 years
- C) In the section showing the Asian continent, the doubling time is approximately 63-64 years
- D) The doubling time has not exceeded 57 years anywhere, nor has it fallen below 30 years

52) What kind of relationship can be observed between the level of development of countries and population growth rates on a world map showing average population growth rates?

- A) Countries with high growth rates are underdeveloped-less developed countries
- B) Countries with high growth rates are generally developed countries
- C) Growth rates are generally low in developed countries
- D) There is no clear relationship between growth rates and development

53) From an etymological point of view, the term "desert" means ".....". Which of the following corresponds to the blank above?

- A) Places devoid of humans
- B) Places devoid of sand
- C) Places devoid of sunlight
- D) Places devoid of precipitation

54) Which of the following is not a characteristic of glaciers?

- A) They commonly form in high latitudes (polar regions) and at high altitudes (mountains)
- B) Glaciers stand still without moving
- C) They form where the annual snowfall (mainly in cold and humid seasons) exceeds the annual melting (usually in warm and dry seasons)
- D) Successive annual snow layers develop, and the pressure from the weight forces changes in the structure and density of the underlying snow layers (recrystallization)

55) The ground is generally found to be frozen here. Mechanical weathering and mass movements have come to the forefront. The impact of rivers is minimal and occurs only for a limited period. In contrast, the role of wind is quite significant in some areas of this region and during a specific stage of morphological development.

Which of the following morphogenetic regions is described above?

- A) Fluvial
- B) Glacial
- C) Arid and semi-arid
- D) Periglacial

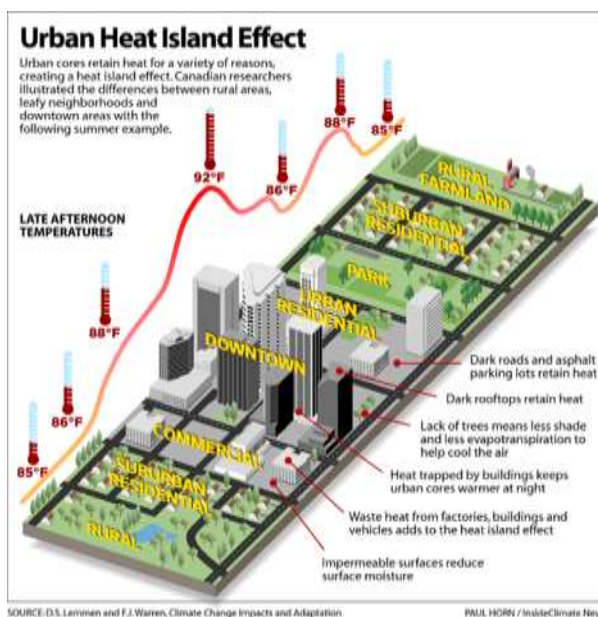
56) What is the name given to the alluvial fans formed from gravel, sand, and other elements deposited by rivers flowing in front of terminal moraines and glaciers?

- A) Kettle
- B) Glacier
- C) Moraine
- D) Sandur

57) Which of the following is true?

- A. Point is the basic data element of the attribute data type
- B. Pixel is a vector data model element
- C. Raster data model is more sensitive than vector data model
- D. Raster data model consists of rows and columns in a regular grid structure

58) Which of the following statements best explains the difference in temperature between urban areas and surrounding rural areas due to the Urban Heat Island (UHI) effect?



- A) Urban areas are cooler than rural areas because they have more green spaces and vegetation
- B) Urban areas are warmer than rural areas because materials like concrete and asphalt absorb and retain more heat than natural landscapes
- C) Rural areas experience higher temperatures than urban areas due to the presence of agricultural land
- D) The temperature difference between urban and rural areas is negligible, with both areas equally affected by climate change

59) Which type of analysis is it that evaluates data from different layers together; intersection, union, being inside or outside, being at a certain distance, etc. queries can be performed?

- A. Density Analysis
- B. Buffer Zoning Analysis
- C. Proximity Analysis
- D. Overlay Analysis

60) Which of the following analyses is used to determine the markets within 500, 1000, 1500 meters of your home?

- A. Buffer
- B. Network
- C. Hydrological
- D. Scenario

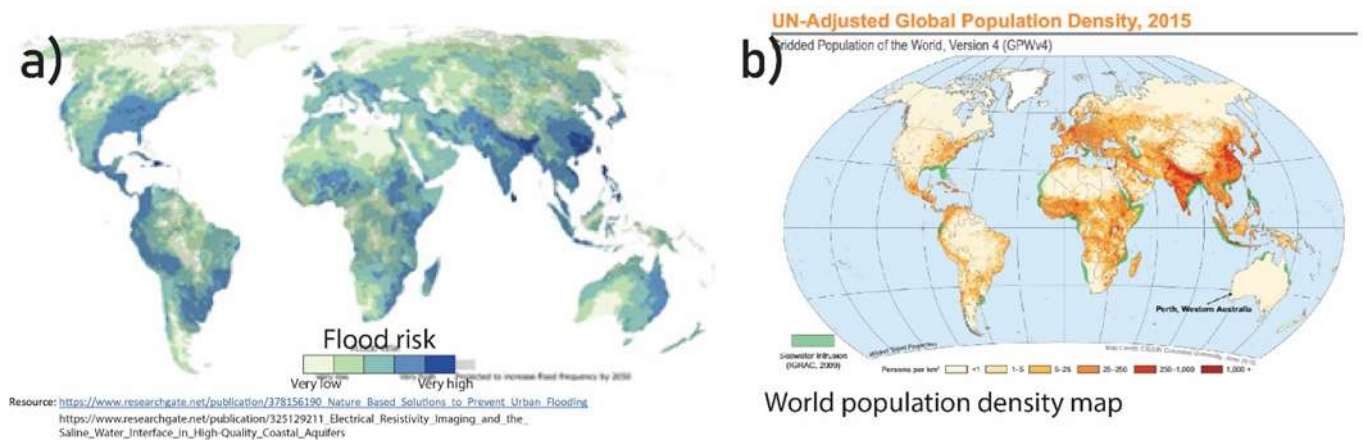
61) Which of the following is not included in surface analysis?

- A. Slope
- B. Aspect
- C. Shading (Relief)
- D. Interpolation

62) When analyzing land cover change between 2010 and 2016, which of the following approaches is most appropriate for detecting and quantifying changes?

- A) Comparing historical weather data from 2010 and 2016
- B) Conducting field surveys in 2016 and comparing them to aerial photographs from 2010
- C) Using time series analysis of satellite imagery from 2010 to 2016 to detect changes in land cover
- D) Comparing population growth data between 2010 and 2016

63) How are these directly related? Evaluate the relationship between the situations presented in figure “a” and “b”



- A) High population density areas always have the highest flood risk due to greater impervious surfaces
- B) Low population density areas are always safe from flooding risks
- C) Flood risk is only determined by population density and not by other factors such as topography or drainage systems
- D) High flood risk areas can exist in both high and low population density areas, depending on geographical and infrastructural factors

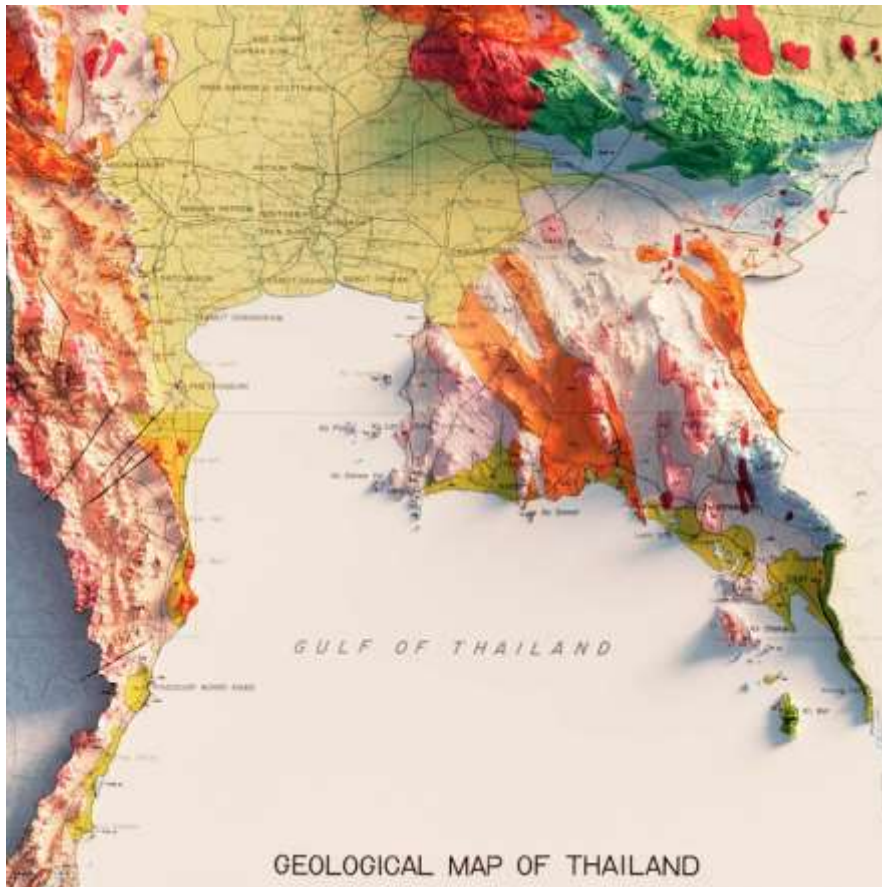
64) When attempting to identify flood-affected areas during cloudy weather, which type of satellite imagery is most suitable?

- A) Optical imagery from satellites like Landsat or Sentinel-2
- B) Infrared imagery from weather satellites
- C) Radar imagery from satellites like Sentinel-1
- D) Visible spectrum imagery from commercial satellites

65) Which of the following is used to determine the level of risk assessment?

- A) Risk matrix
- B) Magnitude of hazard
- C) Frequency of hazard
- D) Vulnerability analysis

66) Which lithological structure do the areas shown in yellow in the north of the Gulf of Thailand on the relief geology map above represent?

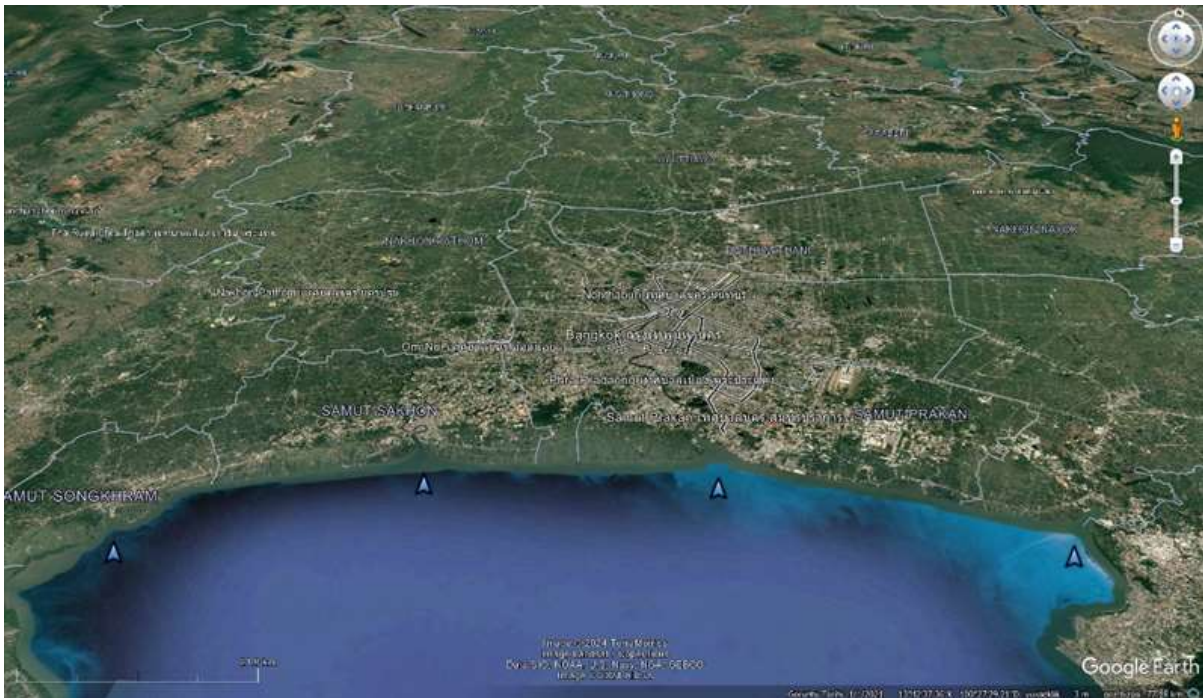


- A) Basalt
- B) Alluvium
- C) Sandstone
- D) Limestone

67) ..... is made up of four elements: disaster risk knowledge, detection, monitoring, analysis, and forecasting, warning dissemination and communication. Which of the following would best fill the blank space?

- A) Vulnerability
- B) Exposure
- C) Early warning systems
- D) Risk evaluation

68) Which of the following can be said about the northern coast of the Gulf of Thailand by looking at the mouths of the Mae Klong, Chao Phraya, Tha Chin and Bang Pakong rivers from west to east, marked with arrows in the figure below?



- A) Tidal amplitude is high.
- B) Rivers carry less sediment.
- C) Strong currents are seen from north to south.
- D) Water quality is very poor.

69) The concept of the “tourist gaze” refers to the way in which tourists observe and interpret the places they visit, often influenced by cultural expectations and mediated by external representations such as advertisements, social media, and travel guides. This gaze is not just a passive act of seeing but is shaped by the desire to experience certain aspects of a destination that are perceived as authentic, exotic, or idealized.

What does the “tourist gaze” typically focus on, and how does it shape the experience of a destination for visitors?

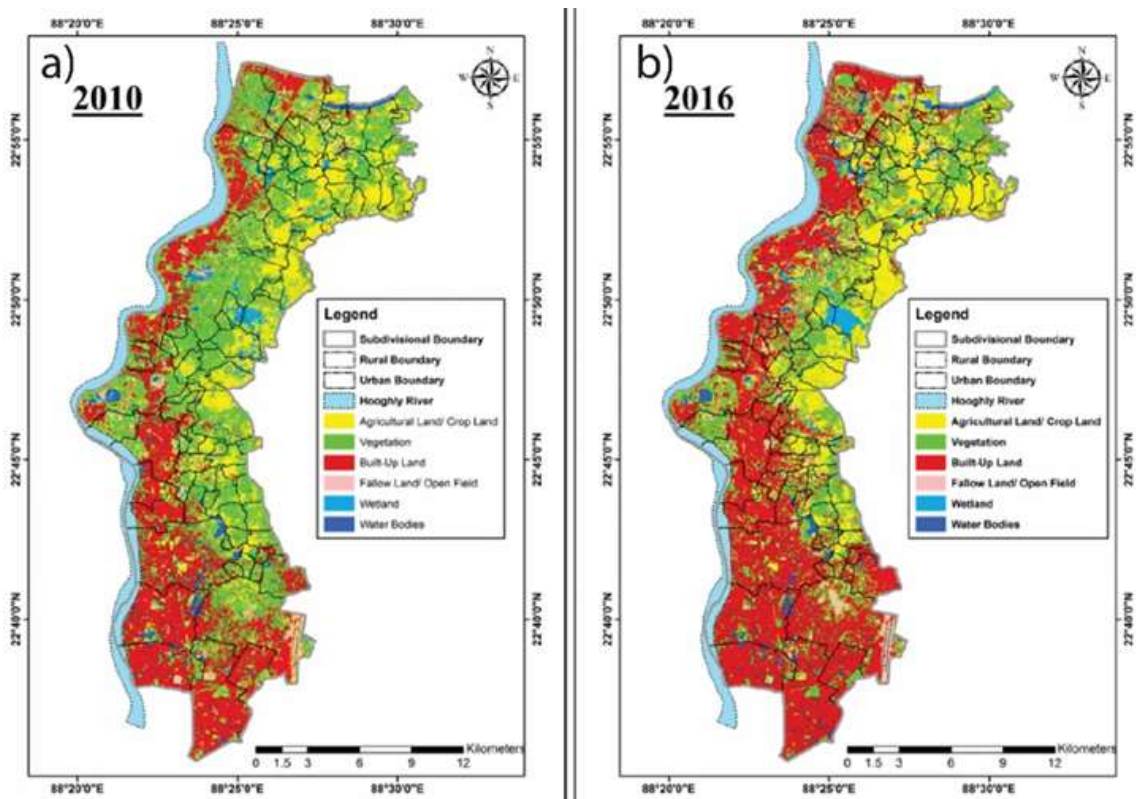
- A) The daily lives of local people
- B) Details of historical events
- C) The functioning of local economies
- D) Idealized images portrayed by social media and advertisements

70) Lucas lives in a rapidly growing megacity where urban expansion is transforming the surrounding agricultural lands into residential areas. The city is experiencing significant environmental and social challenges, including increasing pressure on water resources, rising levels of traffic congestion, and reduced availability of green spaces.

Which geographic concept best describes the process contributing to these challenges in Lucas's city?

- A) Urban sprawl
- B) Gentrification
- C) Postmodern urbanization
- D) Suburbanization

71) Examine the provided land cover maps for the years 2010 and 2016. Which of the following statements best describes the observed land cover changes?



- A) There has been significant deforestation, with forest areas being converted mainly into urban areas
- B) The agricultural land has expanded at the expense of both forests and urban areas
- C) Urban areas have expanded, leading to a decrease in both agricultural land and forests
- D) Water bodies have increased, leading to a reduction in surrounding agricultural land



- 72) What type of data is typically collected during a field study?
- A) Quantitative data, such as temperature and rainfall measurements
  - B) Qualitative data, such as interviews with local residents
  - C) Both quantitative and qualitative data
  - D) Data exclusively from secondary sources

73) Emma returns to her rural village after many years. Over time, the village has experienced rapid growth due to tourism. Many traditional buildings have been transformed into boutique hotels, attracting visitors from around the world. However, Emma observes that this development has led to the loss of the village's unique cultural identity and traditional way of life.

Which geographic concept best explains the changes observed by Emma?

- A) Urban renewal
- B) Spatial homogenization
- C) Postmodern urbanization
- D) Local sustainability

- 74) What is the difference between climate and climate change, and what are the natural and human causes of climate change?

Read the following paragraph and answer the questions 75-76:

"The rapid pace of climate change is largely driven by human activities such as burning fossil fuels, deforestation, and industrial processes. These actions increase the concentration of greenhouse gases in the atmosphere, leading to global warming. As temperatures rise, polar ice caps melt, causing sea levels to rise. This not only threatens coastal communities but also disrupts ecosystems and contributes to the loss of biodiversity. Moreover, changing weather patterns are resulting in more frequent and severe natural disasters, such as hurricanes, droughts, and wildfires."

- 75) How does the melting of polar ice caps due to rising temperatures affect coastal communities and ecosystems?

76) What are some of the natural disasters that have become more frequent and severe due to changing weather patterns caused by climate change?

77) Read the following paragraph and answer the question:

"Climate change is causing shifts in agricultural zones worldwide. As temperatures rise and precipitation patterns change, regions that were once suitable for certain crops may no longer be viable. For example, areas that previously supported wheat production may become too hot or dry, while other regions may see new opportunities for crop growth. These changes pose significant challenges for food security and require adaptation strategies, such as the development of drought-resistant crop varieties."

Question: How is climate change affecting agricultural zones, and what are the implications for food security?