

## 2022 United States Geography Championships

### Cartographic Examination Question Packet

#### General instructions -

Respond to each of the following questions on the answer document provided. Only answers written in the appropriate space on the answer document will be marked. Where appropriate, you should write sentences or phrases instead of single words. If a question or section asks for a specific number of reasons or answers, give only the required number of answers specified. The examination consists of eight sections, and each section will be worth the specified number of marks. You have one hour to complete this section of the examination and the accompanying multiple choice questions.

#### Section 1 [30 marks]

Please refer to the map in Section 1 of the Resource Booklet.

1. Based on the information in the map, did each of the following states GAIN or LOSE population between July 2020 and July 2021 – North Carolina, Maine, Alaska, Hawaii, Montana
2. Identify and explain TWO potential factors that would explain the sharp population decline in states like California, New York and Illinois during the period shown on this map.
3. Identify and explain THREE potential factors that would explain the migration of Americans to states like Texas, Arizona and Montana during the period shown on the map.
4. Identify and explain THREE effects of the Covid-19 pandemic on the population growth rate of the United States. For each effect you identify, indicate whether it caused the population growth rate to INCREASE or DECREASE.
5. Within the last century (1922-2022), identify another historical event that had an effect similar to the pandemic on the population growth rate of the United States. Explain HOW and WHY this event caused a similar change. Be as specific as possible in the space provided.

#### Section 2 [20 marks]

Please refer to the map in Section 2 of the Resource Booklet. This illustration shows several islands with similar habitats located some distance from a larger mainland.

1. According to the theory of island biogeography, which of these islands would have the HIGHEST species richness and diversification? Which would have the LOWEST? Briefly explain your answer for each.
2. Among the following pairs, which island would exhibit MORE species richness and diversification? C or D; E or F; D or G; A or B
3. With which of the following would parasite introduction and prevalence of zoonotic diseases most closely correlate – island size, distance from the mainland or species introduction? Briefly explain your answer.
4. Besides size and distance, list FOUR factors that could influence the biodiversity of an island.
5. Briefly discuss the similarities between the theory of island biogeography and the gravity model of human migration.
6. Define the term 'wildlife corridor'. How does a wildlife corridor help to mitigate habitat fragmentation?

**Section 3 [30 marks]**

Please refer to the map in Section 3 of the Resource Booklet.

1. Which of the following most closely reflects the amount that the melting of ice from Antarctica has contributed to global sea level rise since 2010 – 4.5mm, 4.5cm or 45cm? Which of the following reflects the amount of ice lost from Antarctica since 1992 – 3 million tons, 3 billion tons or 3 trillion tons?
2. Using the data in the map, describe which areas of Antarctica are gaining ice mass and which areas are losing ice mass.
3. Define the term 'albedo effect'. Briefly discuss the relationship between the albedo effect and the loss of ice in both Antarctica and in the Arctic. How is the relationship between the albedo effect and the loss of ice similar to the relationship between warming temperatures and thawing permafrost?
4. Define the term 'thermohaline circulation'.
5. If, as some scientists have predicted, the thermohaline circulation (also known as the 'global ocean conveyor belt') were to substantially slow or shut down completely, briefly explain effect on each of the following – the climate of northern Europe; the climate of Antarctica; global food supplies; sea life.

**Section 4 [20 marks]**

Please refer to the images in Section 4 of the Resource Booklet. These images show Klyde Warren Park in downtown Dallas, TX at the center of the Dallas Arts District (including the Dallas Museum of Art and the AT&T Performing Arts Center, located on either side of the park). Images 1 and 2 show the park on a Google Maps satellite view (outlined in red) and image 3 is an aerial view of the park in 2020.

1. Given that this project created a park space by covering over an existing 8-lane freeway through downtown Dallas, identify and briefly explain the impact of a project like this on each of the following – automobile travel through downtown, pedestrian and bicycle travel through downtown, pollution and greenhouse gas emissions, residential property values and rents in the vicinity, commercial property values and rents in the vicinity.
2. Define the term 'urban renewal'(also known as 'urban regeneration'). Identify FOUR goals of urban renewal projects in modern American cities.
3. Given the information from the images, identify TWO ways a project like Klyde Warren Park might make the Arts District more functional for patrons. Identify TWO ways this project might make the Arts District less functional or more difficult for patrons to use.
4. Define the term 'gentrification'. Explain the relationship between gentrification and urban renewal. Be as specific as possible in the space provided.