

2021 United States Geography Championships - Cartographic Examination

Section 1 [25 marks]

Please refer to the maps in section 1 of the Resource Booklet.

1. In a well-developed paragraph, briefly discuss the social, political and economic reasons for the 'Great Migrations' of African Americans shown on these maps. Be as specific as possible. [13 marks]
2. In a well-developed paragraph, briefly discuss the causes for the population changes in the 'Sunbelt' states since 1950 as shown on the map. Be as specific as possible. [12 marks]

Section 2 [25 marks]

Please refer to the map in section 2 of the Resource Booklet. This map shows the decline in kelp populations in various sites in California.

3. In a paragraph, explain the role of kelp in carbon sequestration. Be as specific as possible. [10 marks]
4. Identify and explain two reasons that kelp forests more effective in carbon sequestration than terrestrial forests. [4 marks]
5. Roughly how much more carbon does kelp sequester than an equivalent area of trees? (twice as much, 5 times as much, 10 times as much, 20 times as much) [1 mark]
6. Identify three human threats that would account for the decline in kelp population in California during the period shown. [3 marks]
7. Identify three natural threats that would account for the decline in kelp population in California during the period shown. [3 marks]
8. Identify and explain two ways that local governments, universities or environmental organizations could help to restore the kelp populations in California. [4 marks]

Section 3 [25 marks]

Please refer to the map in section 3 of the Resource Booklet. This map shows predicted landslide hazard on Nov. 5, 2020 immediately following the landfall of Hurricane Eta in this area.

9. Identify five natural causes of landslides. [5 marks]
10. Identify five human activities that can increase risk of landslides. [5 marks]
11. Given the information on the map, explain why the areas shown in purple are considered to be at the highest risk from devastating landslides. [5 marks]
12. In addition to population data, what other information would scientists need to consider to assess the risk of and hazard from landslides in this region. Provide at least four other types of information that would help in this assessment. [4 marks]
13. Identify and explain three methods that can be used to mitigate landslides. [6 marks]

Section 4 [25 marks]

Please refer to the maps in section 4 of the Resource Booklet. These maps show information on Orleans Parish, Louisiana used by the CDC to calculate its Social Vulnerability Index for 2018. The CDC defines social vulnerability as factors that 'may weaken a community's ability to prevent human suffering and financial loss in a disaster'.

14. Define the term geographic information science. [3 marks]

15. What is the relationship between geographic information science and geographic information systems? [2 marks]

16. How was Dr. John Snow able to use spatial analysis to track the 1854 London Soho cholera outbreak? What specific information did Snow include in his map that allowed him to find the source of the outbreak? [6 marks]

17. In a paragraph, explain how the four sets of factors shown in the second set of maps might make a community or county vulnerable to the effects of a disaster or disease outbreak. [8 marks]

18. Give three specific ways that municipal, county or state governments might use the SVI data to inform their disaster response planning. [3 marks]

19. Give three specific ways that municipal, county or state governments might use the SVI data to make systemic or long-term changes for vulnerable communities like those shown on the map. [3 marks]