2017 USGO Map Skills Examination - Key and Marking Scheme

Section 1 [10 marks]

1. Describe, in as much detail as possible in the space provided, the epicenter of the earthquake. What are the approximate coordinates of the epicenter?

2. Explain, in as much detail as possible in the space provided, the cause of the Japanese tsunami.

3. Given the information on the map, and that the earthquake occurred at 05:46 UTC, at what approximate time would the tsunami have reached each of the following locations - Hawaii, California, Mexico, Chile

Grading notes: This question is adapted from the 2016 iGeo Written examination. Questions 1 and 3 were point marked, question 2 was level marked.

Expected answers:
1. Off the coast of Honshu with the epicentre approximately 70 kilometres (43 mi) east of the Oshika Peninsula of Tōhoku and the hypocenter at an underwater depth of approximately 29 km (18 mi); coordinates 38.32 N, 142.37 E [coordinates within +/- 5 degrees latitude and +/- 10 degrees longitude were accepted]

2. This earthquake occurred where the Pacific Plate is subducting under the plate beneath northern Honshu; An upthrust of 6 to 8 metres along a 180-km-wide seabed at 60 km offshore from the east coast of Tōhoku resulted in a major tsunami [other reasonable answers accepted]

3. Hawaii – 13.07 UTC; California – 16.00 UTC; Mexico – 16.50 UTC; Chile – 02.51 UTC (next day) [times within +/- one hour were accepted]

Section 2 [9 marks]

1. According to the map, what is the rate of annual population change in Cuba? What are two factors that might account for this rate of change?

2. Identify two countries in Africa that have an annual population growth rate over three percent.

3. According to the map, how does the rate of population change for each of the following nations compare to that of the Russian Federation - Kazakhstan, Georgia, Lithuania, Kyrgyzstan

Section 3 [6 marks]

1. Given the information on the maps, compare and contrast the geographic distribution of Starbucks and Subway franchises in the United States.

2. Give at least two factors that might account for the pattern of distribution of Starbucks locations. In what two specific geographic regions of the country would you expect Starbucks sales to be the highest?

Grading notes: Both questions in this section were level marked.

Expected answers:
1. More Subway locations than Starbucks; Starbucks concentrated in urban areas, Subway spread more evenly across urban / rural [other reasonable answers acceptable]

2. Concentrated in urban areas – appeal to more affluent customers, business people, travelers, commuters; Coffee less popular in certain parts of the country due to culture, religion, etc. [other reasonable answers acceptable]; Sales - Starbucks' highest sales are in California, Texas, and New York. [reasonable equivalents accepted]

Section 4 [7 marks]

1. Identify three specific uses for the land within the urban perimeter that would result in the large white spaces depicted on the map.

2. In 1994, the Colombian government made the stratification system illustrated here into law in order to grant subsidies to the poorest residents. Identify two potential benefits of this system for residents of strata 1 and 2. Identify two potential reasons for the cluster of strata 4, 5 and 6 in the northern section of town.

Grading notes: This question was adapted from the 2008 and 2016 iGeo Written examinations. Question 1 was point marked and question 2 was level marked.

Expected answers:
1. Parks, airports, business districts, schools / universities [other answers acceptable]

2. Most answers to the first part of this question addressed access to subsidized rent and social services for strata 1 and 2, as well as the ability of the city / national government to concentrate resources and services for lower-income residents in these zones. Other reasonable answers were accepted. Most answers to part two focused on the desire of wealthier residents to live near business and financial centers, near recreational and leisure areas, and near other wealthier residents. Other reasonable answers were accepted.

Section 5 [7 marks]

1. Given the information depicted in the map, what type of energy production is most likely represented by the dots?

2. Identify three reasons why this type of energy production would take place in the area of the United States indicated by the dots.

3. The area of Texas marked with the rectangle is a center for a certain type of renewable energy production. What type of energy would likely be produced in this area? Identify two geographic reasons why this type of energy would be produced in this region.

Grading notes: All three of the questions in this section were point marked.

Expected answers:
1. Ethanol

2. proximity to corn production, lower transportation costs, economic benefits for local areas [other reasonable answers accepted]

3. wind energy; low population density, flat terrain, generally windy [other reasonable answers accepted]

Section 6 [9 marks]

1. Identify the specific denomination represented by each of the following colors - purple, red, grey, and orange.

2. What is the most likely reason for the concentration of light green areas in Alaska?

3. Briefly explain the weakness of representing the geography of religion in the United States using a map of this type. Identify one way you would change this map to make it a more accurate representation.

Grading notes: Question 1 was point marked. Questions 2 and 3 were level marked.

Expected answers:
1. purple – Roman Catholic; red – Southern Baptist (Baptist or Reform Baptist were not accepted); grey – LDS (Mormon); orange – Lutheran

2. High population of Native Americans practicing indigenous religions [other related answers were accepted]

3. Answers to the first part of this question should have addressed the problem of representing only one religion per county as opposed to multiple religions, or the inability of this type of map to express the religious diversity of the country accurately. Other reasonable answers were accepted for the first part. Answers for the second part were highly varied and any reasonable answer was accepted.

Section 7 [7 marks]

1. According to the information on the map, list, in order of monetary value from greatest to least, the four top beneficiaries of remittance flows and their respective monetary values.

2. Identify three reasons why so many of these remittance flows originate in the United States.

Grading notes: This section of the exam was entirely point marked. Half marks were awarded for listing each country in the correct order for part one, and half marks were awarded for listing each remittance values.

Expected answers:
1. India – 35.2; China - 29.8; Mexico – 22.2; The Philippines 10.1

2. Acceptable answers for this section varied, and may have addressed the large immigrant population of the United States, the relative economic strength of the United States compared to the nations depicted, and the ease of sending remittances from the United States to other nations. Many other reasonable answers were acceptable.