

2017 USGO Nationals Written Examination - Key and Marking Scheme

Section 1 - Population and Public Health [9 marks]

1. Given the chart above, describe and give two possible reasons for the general global trend in malaria cases between 2000 and 2015.
2. Describe the trend in malaria cases in Africa shown on the chart, and give two possible reasons to account for this trend between 2000 and 2015.
3. Briefly explain three possible measures governments might take to reduce the spread of infectious diseases due to global travel and tourism.

Grading notes: This question is meant to test both analytical skills and basic knowledge of population and public health issues. Each part of the question was worth three marks. For parts 1 and 2, one mark was awarded for an accurate description, and one mark was awarded for each plausible reason (level marking). For part 3, each correct answer was awarded one mark (point marking).

Expected answers:

1. The global trend is slightly down, with a slight increase in Africa and large drop (eradication) in Europe; reasons for the trend may include mosquito control efforts, increased emphasis on public health and prevention, improved treatments, and vector control [other reasonable answers accepted]
2. Slight increase; reasons may vary, may include economic conditions, global warming and political instability, long lifespan of African mosquito [other reasonable answers accepted]
3. Most reasonable answers for this section discussed vector control, screening efforts, and travel restrictions. Other reasonable public policy and public health measures were accepted.

Section 2 - Political Geography [6 marks]

1. Identify two instances during the last century in which a country has built a wall or other barrier along its border and explain the specific purpose of each structure.
2. Identify and briefly discuss two economic consequences of walls or other barriers built along national borders.

Grading notes: This question set was adapted from the 2012 AP Human Geography examination, and is a type of political and economic geography question that might be addressed on the iGeo Written Examination. For part 1, one mark was awarded for identifying two walls or barriers, and one mark for each explanation. For part 2, one mark was awarded for identifying two consequences, and one mark for discussing each consequence

(level marking).

Expected answers:

1. Common answers for this part included the US-Mexico border wall, the Maginot Line, the Berlin Wall, and the Western Sahara Berm. Other reasonable answers were accepted.

Purposes varied depending on examples chosen.

2. Common answers included reduction in trade due to physical barriers, reduced mobility for seasonal workers, and discussion of illicit economic activity. Other reasonable answers were accepted.

Section 3 - Climate Geography [6 marks]

1. Based on the information in the map provided, describe the projected patterns of surface temperature increase by 2099.

2. Explain why the arctic region is projected to have the largest increase in surface temperature over the period covered by the map. Identify two possible effects of this increase in surface temperature in the arctic on areas outside the region.

Grading notes: This question set is adapted from the 2012 iGeo Written Examination - climate geography is a recurring theme on the iGeo examinations. For part 1, marks were awarded for an accurate and thorough description. For part 2, one mark was awarded for an explanation and one mark for each possible effect.

Expected answers:

1. Possible answers include extreme increases in the arctic, large increases in areas like Africa and South America, and increasing ocean surface temperatures in the Northern Hemisphere. Least warming in the southern oceans from about 30 to 60 degrees South, and area in the North Atlantic Ocean. Other reasonable answers accepted.

2. Melting of the ice means that the short wave solar radiation is no longer reflected but absorbed resulting in heating of the Arctic Ocean, more ice is melted, further reducing the albedo, leading to further warming. Wide range of answers accepted for effects.

Section 4 - Historical Geography [9 marks]

1. Identify and explain ways in which the Interstate Highway system in the United States has affected each of the following since 1960 - a) transportation, b) urban geography, c) urban demographics

Grading notes: Urban geography is well represented on the iGeo written exam, the AP Human Geography exam and the AP US History exam. This type of question is designed to test written expression of concepts in urban geography. For each section of the question, marks were awarded for effects and well-reasoned explanations. This question was adapted from the 2013 AP Human Geography examination.

Expected answers:

1. a) Possible answers include increased reliance on / popularity of automobiles, the growth of interstate trucking to transport goods, decreased popularity of railroad passenger travel [other reasonable answers accepted]

1. b) Most correct answers focused on increased radius of settlement and suburbanization, but other reasonable answers were accepted.

1. c) Correct answers mainly focused on the concept of 'white flight' and the socioeconomic changes brought about by the exodus of white, middle and upper class residents from many American cities, other reasonable answers were accepted.

Section 5 - Urban Geography [9 marks]

1. Define the term 'smart city' and explain its relationship to modern urban development.

2. Identify two possible advantages and two possible disadvantages of incorporating 'smart city' design principles.

3. Since 2014, Singapore has strongly embraced the 'smart city' concept. Briefly discuss the governmental and geographic advantages Singapore has over other countries in implementing these principles.

Grading notes: Smart cities were a major theme of the 2016 iGeo, and this question was adapted from the 2016 Written Examination. For question 1, one mark was awarded for a correct definition and one for a reasonable explanation. For question 2, one mark was awarded for each correct advantage and disadvantage. Question 3 was level marked.

Expected answers:

1. urban development vision to integrate information and communication technology (ICT) and Internet of things (IoT) technology in a secure fashion to manage a city's assets. These assets include local departments' information systems, schools, libraries, transportation systems, hospitals, power plants, water supply networks, waste management, law enforcement, and other community services. [reasonable equivalents accepted]

2. Advantages - A smart city is promoted to use urban informatics and technology to improve the efficiency of services. ICT allows city officials to interact directly with the community and

the city infrastructure and to monitor what is happening in the city, how the city is evolving, and how to enable a better quality of life. [many other reasonable answers accepted]

Disadvantages - Concept can contribute negatively to even more social differences between the city inhabitants (larger gap between poor and rich); Using information technology (hi-tech methods) cities can/will become more expensive; It can contribute even more to corruption, even though it might just become more sophisticated; Using modern technology in city management can lead to city services being shut down or personal information being released (technology being used to spy on citizens); Possible “domino effect” – the fact that cities are bound to become increasingly connected could also mean that a failure in one sector could lead to problems in others. [other reasonable answers accepted]

3. Singapore has instituted a ‘Smart Nation’ program in recent years. Advantages include compact size and single layer government, as well as a fairly high standard of living and national income, all of which make smart city concepts easier to implement. [other reasonable answers accepted]

Section 6 - Biogeography [5 marks]

1. Identify the biome indicated with the arrow. What types of vegetation would typically be expected in forests of this biome.

2. Define the term krummholz. Where would krummholz typically be found in relation to the biome from part 1?

Grading notes: This is a straightforward biogeography question, of a type that might appear on the iGeo written exam. This section was entirely point marked.

Expected answers:

1. Boreal (or taiga, snow forest); mix of spruce, pines and birch; Russian taiga has spruces, pines and larches, home to many types of berries [some other specific answers accepted]

2. Krummholz - a type of stunted, deformed vegetation encountered in subarctic and subalpine tree line landscapes, shaped by continual exposure to fierce, freezing winds; in the alpine transition zone (between the boreal and alpine zones)

Section 7 - Volcanology and Plate Tectonics [10 marks]

1. Given the accompanying illustration, identify by number each of the following:

- a) a subduction zone
- b) the most likely location for shallow earthquakes
- c) a divergent boundary

2. What type of volcano would likely be found in the region depicted in this illustration? Identify at least two characteristics of an eruption from a volcano of this type.

3. What geographic area or region of the United States is represented by this illustration? Identify by name the three tectonic plates depicted.

Grading notes: This is a straightforward volcanology question, of a type that might appear on the iGeo written exam. This section was entirely point marked.

Expected answers:

1. Subduction zone – 2; shallow earthquakes – 5; divergent boundary – 1

2. Stratovolcano (composite volcano); periodic explosive eruptions and effusive eruptions, lava flowing from stratovolcanoes typically cools and hardens before spreading far due to high viscosity, have posed the greatest hazard to civilizations, typically erupt with explosive force: the magma is too stiff to allow easy escape of volcanic gases [other reasonable answers acceptable]

3. Northwestern US (CA, OR, WA); Pacific Plate, Juan de Fuca Plate, North American Plate

Section 8 - Cultural Geography [7 marks]

1. Define the term lingua franca. Briefly discuss three factors that have contributed to the growing global use of English over the last century.

2. Despite the growing use of English, efforts are under way in many countries to revive lesser-used minority languages. Briefly discuss three factors behind this revival of lesser-used minority languages.

Grading notes: This is a type of cultural geography question is commonly found on both the iGeo Written Examination and the AP Human Geography examination. This section is adapted from the 2015 AP Human Geography examination and the 2007 AP Human Geography examination. For question 1, one mark was awarded for a correct definition, and the remainder of the question was level marked. Question 2 was level marked.

Expected answers:

1. a language or dialect systematically used to make communication possible between people who do not share a native language or dialect, particularly when it is a third language that is distinct from both native languages. [other reasonable answers accepted] Factors contributing to the growing use of English include global trade and relative economic influence of the United States and other English-speaking nations, popularity of English-language media and culture overseas, expansion and availability of the internet, global reach of American and British style education [many other reasons accepted]

2. Many answers could be acceptable, including efforts to maintain distinctive culture by resisting the spread of English, devolution and separatism in some nations, nationalism, and increased access to information and communications to enable spread and survival of minority languages.

Section 9 - Geomorphology [9 marks]

1. Given the accompanying photographs, identify if weathering or erosion was the main cause of the formations pictured.
2. What specific type of weathering or erosion is depicted in photograph B? Briefly explain the process of this type of weathering or erosion.
3. Briefly explain the process of chemical weathering. Name two chemical processes that can be responsible for this type of weathering.

Grading notes: This is a straightforward geomorphology question, of a type that might appear on the iGeo written exam. This section was entirely point marked.

Expected answers:

1. A - erosion; B - erosion; C – weathering; D – weathering
2. Wind erosion (Aeolian); Wind erodes the Earth's surface by deflation (the removal of loose, fine-grained particles by the turbulent action of the wind) and by abrasion (the wearing down of surfaces by the grinding action and sandblasting by windborne particles).
3. Chemical weathering changes the composition of rocks, often transforming them when water interacts with minerals to create various chemical reactions. Chemical weathering is a gradual and ongoing process as the mineralogy of the rock adjusts to the near surface environment. New or secondary minerals develop from the original minerals of the rock. In this the processes of oxidation and hydrolysis are most important. Chemical weathering is enhanced by such geological agents as the presence of water and oxygen, as well as by such biological agents as the acids produced by microbial and plant-root metabolism. [other reasonable answers accepted]