

2023



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# AP<sup>®</sup> Human Geography

## Scoring Guidelines

### Set 1

**Question 1: No Stimulus****7 points****(A) Define the concept of RNI.****1 point**

Accept one of the following:

- A1. The difference between the crude birth rate and crude death rate.
- A2. The difference between the crude birth rate and crude death rate, expressed as a percentage or as thousands per population.
- A3. The number of live births and the number of deaths divided by the population per thousand population.
- A4. The difference between the crude birth rate and crude death rate over a particular time period (e.g., a year).
- A5. The annual percent change in population, not including immigration or emigration.

**(B) Describe how a country may have a negative RNI.****1 point**

Accept one of the following:

- B1. A country can have a negative RNI if the death rate is higher than the birth rate in a given year.
- B2. A country can have a negative RNI if the number of deaths exceeds the number of live births in a given year.

**(C) Compare ONE difference between RNI and the total fertility rate as indicators of population change.****1 point**

Accept one of the following:

- C1. RNI is the annual percent growth rate of a population (not including immigration or emigration), while the total fertility rate (TFR) estimates the number of children that may be born to women of birthing age or aged 15–45.
- C2. RNI includes both crude birth and death rates, while TFR is a measurement of the number of children likely to be born to a woman and does not involve any mortality measures.
- C3. RNI is an annual statistic for a specific year, while the TFR is an estimate at a specific point in time (e.g., snapshot).
- C4. An RNI of 0.0 is a zero-growth population, while a TFR of 2.1 is a population that is replacing itself but will not grow in numbers over time.
- C5. RNI can predict future population growth based upon the demographic transition, while TFR can predict future population growth by comparison to the replacement rate (TFR=2.1).

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**(D) Explain ONE reason why RNI in urban areas may vary significantly from RNI in rural areas in the same country. 1 point**

Accept one of the following:

- D1. Urban populations tend to have fewer children than rural populations due to the reduced need for agricultural labor.
  - D2. The cost of living in urban areas (e.g., housing, schools) tends to be higher than in rural areas, and this may incentivize women to have fewer children leading to a lower RNI.
  - D3. Women in urban areas tend to have greater access to health care, health education, and/or family planning resources, which reduces the probability of having or the propensity to have children (fecundity).
  - D4. Women in urban communities commonly work outside of the home, having less time to care for children.
  - D5. Families in urban housing tend to have less space to house children.
  - D6. Women in urban areas tend to have higher levels of education, which reduces the probability of having children, the propensity to have children (fecundity), and/or delays the age at which women have children.
  - D7. Women in urban areas tend to have more political power, which reduces the probability of having children, the propensity to have children (fecundity), or delays the age at which women have children.
  - D8. Women in urban areas tend to have greater financial stability, which reduces the probability of having children, the propensity to have children (fecundity), or delays the age at which women have children.
  - D9. The higher level of access to health care in cities reduces infant and/or child mortality rates, which reduces the need for families to have additional children.
  - D10. People in rural areas may lack access to or may not be able to afford contraception and family planning due to increased levels of poverty, or lack of health services.
  - D11. People in rural areas may hold on to traditional cultural values that do not support limiting birth rates, resulting in higher rates of natural increase in rural areas.
  - D12. People in rural areas may need more children to work or help with labor-intensive agricultural work, resulting in higher rates of natural increase in rural areas.
  - D13. Women in rural areas may lack access to or may not be able to afford education, limiting opportunities outside the home, and resulting in higher rates of natural increase.
  - D14. Women in rural areas may have less access to health care which may increase infant mortality rates and/or child mortality rates, and/or increase the need or desire for families to have additional children.
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**(E) Explain why there are often differences in doubling times between less developed countries and more developed countries. 1 point**

Accept one of the following:

- E1. Doubling times may vary because less developed countries (LDCs) have higher rates of natural increase than more developed countries (MDCs).
  - E2. Doubling times may vary because MDCs have lower rates of natural increase than LDCs.
  - E3. LDCs have social or economic conditions that may result in high population growth rates or high fertility rates (e.g., domestic role of women in society, low age of marriage, highly agricultural society, high levels of religious adherence, and/or high infant mortality rates, low availability of healthcare and/or family planning) that reduce the amount of time needed for a population to double in size, as compared to many MDCs, which do not have these social or economic conditions.
  - E4. MDCs have social and economic conditions that can result in low population growth rates and/or low fertility rates (e.g., equitable roles of women in society, marriage at a later age, service and technology-based economy, highly urbanized society, low levels of religious adherence, and/or low infant mortality rates, high accessibility to healthcare and/or family planning) that increase the amount of time needed for a population to double in size, as compared to many LDCs where these social and economic conditions do not exist.
  - E5. MDCs tend to have lower birth rates or lower total fertility rates than LDCs, which, combined with low death rates and/or a lower RNI, result in a longer doubling time in MDCs.
  - E6. LDCs tend to have higher RNIs than MDCs, resulting in a shorter doubling time in LDCs.
  - E7. LDCs tend to have higher birth rates or higher fertility rates than MDCs, which, combined with lower death rates and/or a higher RNI, result in a shorter doubling time in LDCs.
  - E8. MDCs tend to have lower RNI than LDCs, resulting in a longer doubling time in MDCs.
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**(F) Explain ONE reason ethnonationalism might lead a government to promote pronatalist policies. 1 point**

Accept one of the following:

- F1. A government might promote pronatalist policies because children can be seen as a symbol of national pride and/or a centripetal force (cultural cohesion).
  - F2. A government might promote pronatalist policies because increases in population of a national, ethnic, culture group, or nation-state can improve social cohesion or social relations.
  - F3. A government might promote pronatalist policies because increased birth rates can bolster the desire for territorial expansion, economic growth, irredentism, or militancy (e.g., increased size of the military, social status gained through military service).
  - F4. The government of a theocratic state might promote pronatalist policies based on religious doctrine.
  - F5. Some governments may promote pronatalist policies aimed at the majority (e.g., dominant) culture (e.g., ethnic) group to increase the political power of the majority and/or decrease the power of minority groups.
  - F6. A government with restrictive immigration laws or policies may promote pronatalist policies to reverse a declining total population.
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- (G) Explain the degree to which a unitary government may be more effective than a federal government in enforcing antinatalist policies. 1 point**

Accept one of the following:

Statement or indication of a moderate or high degree

AND

- G1. A unitary government could more easily enact countrywide family planning policies or laws that restrict reproduction (e.g., high penalties, criminalization, financial disincentives, use of informants and/or secret police to identify violators).
- G2. A unitary government may have an effective, specialized, and/or centralized national public health care system and/or national health insurance system (e.g., provide family planning services more effectively and/or at lower cost).
- G3. A unitary government may have a more efficient system to deliver incentives directly to participating citizens (e.g., have fewer levels of governance where money could be siphoned off for other public programs or be stolen through corruption).
- G4. A federal government may have regional variations in law or policy that could result in less effective programs in some areas (e.g., variations in the delivery of healthcare, access to family planning services, the enforcement of federal policies to control population or reduce fertility rates).

OR

Statement or indication of a low or moderate degree

AND

- G5. There may be little to no difference between the effectiveness of unitary governments and federal governments to deliver an antinatalist policy if there is an inadequate, inaccessible, and/or unaffordable healthcare system (e.g., developing effective family planning programs or policies, access to family planning services).
- G6. There may be little to no difference between the effectiveness of unitary governments and federal governments to deliver an antinatalist policy if there is an adequate, accessible, and/or affordable healthcare system.
- G7. There may be little to no difference between the effectiveness of unitary governments and federal governments to deliver an antinatalist policy if the government lacks enforcement capabilities or lacks the ability to fund and/or deliver incentives to participating citizens.

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**Total for question 1: 7 points**

**Question 2: One Stimulus****7 points**

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**(A) Describe the concept of an early hearth of domestication. 1 point**

Accept one of the following:

- A1. A location where new practices develop and/or from which new practices spread.
- A2. A location where a particular type of plant or animal was first domesticated.
- A3. Locations where early civilizations domesticated plants or animals (e.g., Fertile Crescent, Indus River Valley, Southeast Asia, China, Andean Highlands, Amazonia, and/or Central America).
- A4. An ancient civilization whose farmers converted wild plants or animals into farmable and/or domesticated varieties over time.
- A5. A region (e.g., river valley) where a common wild plant or animal was cultivated into a farmable variant through selective breeding.

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**(B) Identify the crop listed in the table that has diffused the least from its hearth of domestication to the countries listed in the table. 1 point**

Accept the following:

- B1. Yams diffused the least.

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**(C) Explain how food preferences can be a culture trait. 1 point**

Accept one of the following:

- C1. Many foods have distinct characteristics (e.g., ingredients, preparations) that are indicative of a specific culture group.
  - C2. Many culture groups identify with one or more national dishes that represent the typical food culture of a society.
  - C3. Many foods contain an ingredient or crop that is local to the region inhabited by a culture group.
  - C4. Many foods are part of a way of life, and/or are forbidden for a group of people, as represented in the belief systems, religion, tools, material goods (artifacts), calendars, and/or holidays of a culture.
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**(D) Explain how the Columbian Exchange contributed to a crop’s diffusion beyond its hearth of domestication. 1 point**

Accept one of the following:

- D1. The Columbian Exchange led to the relocation or movement of crops from one part of the world to another part of the world through conquest, ecological imperialism, colonization processes, and/or along trade routes.
- D2. The Columbian Exchange was a process by which crops moved from one part of the world to another part of the world because of changing food preferences, cultural assimilation, and/or changing agricultural practices.
- D3. The Columbian Exchange may have accidentally or unintentionally introduced a new crop beyond its hearth of domestication (e.g., seeds or plants that may have been “stow-aways” in containers).

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**(E) Explain how the data in the table support the concept of a crop’s consumption pattern being the result of globalization. 1 point**

Accept one of the following:

- E1. The high per capita production of corn, potatoes, rice, and/or cassava in locations far from the hearth (e.g., Brazil produces 1,056 pounds of corn per capita) supports the idea of this crop being a globalized crop.
  - E2. The high consumption of corn, potatoes, rice, and/or cassava in locations far from the hearth (e.g., rice consumed outside of China) supports the idea of this crop being a globalized crop.
  - E3. Globalized food culture, popularized food culture, global media coverage of food, and/or globalized consumer food preferences can be represented in the data where a crop is commonly produced away from its hearth of domestication.
  - E4. Globalized populations, multicultural societies, global migration patterns, and/or cultural syncretism can be represented in the data where a crop is commonly produced away from its hearth of domestication.
  - E5. Globalized trade and transportation facilitated by free-trade policies, neoliberal policies, complementarity, comparative advantage, competitive advantage, containerization, and/or bulk rail and ship transport can be represented in the data where a crop is commonly produced away from its hearth of domestication.
  - E6. A globalized economy, increases in economic development, and/or the growth of a global middle class of consumers can be represented in the data where a crop is commonly produced away from its hearth of domestication.
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- (F) Explain why a crop may be farmed intensively in a less developed country and be farmed extensively in a more developed country. 1 point**

Accept one of the following:

- F1. Subsistence or intensive farming of a staple crop in less developed countries may be done on small farm plots used to feed a household, whereas extensive or commercial farming in more developed countries would be practiced on large farms for a company's consumers.
- F2. Some farming of staple crops in less developed countries is based on intensive manual labor (e.g., using hand tools, animal power), whereas most farming in more developed countries is mechanized and/or uses limited human or animal labor inputs and is extensive.
- F3. Farmers in less developed countries may not be able to afford or have access to the investment capital, labor-saving equipment, seed supplies, and/or agricultural chemicals needed for extensive farm production, and thus use intensive human labor, whereas farmers in more developed countries tend to have financial resources for investments in extensive farming inputs.
- F4. Many farms in less developed countries use available local resources to feed families or local communities, whereas farms in more developed countries take advantage of economies of scale to produce for large populations.

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- (G) Explain ONE way the global supply chain links crops such as those listed in the table to consumers in other countries. 1 point**

Accept one of the following:

- G1. Crops are transported internationally to consumers, with one of the following steps: storing, processing, packaging, wholesaling, and/or retailing.
- G2. Crop use in the global restaurant and fast-food industries, crops are cultivated and/or processed in one country and are then distributed through supply chains to local restaurants and/or chain restaurants for cooking in another country.
- G3. Due to the increased global consumption of frozen foods, dried foods, canned foods, and/or dehydrated foods, crops can be cultivated and processed into different preserved forms and then distributed to other countries for long-term storage by wholesalers, grocery stores, household consumers, and/or in restaurants until needed for cooking.
- G4. Crops are sent to facilities that process them into other forms (e.g., corn for ethanol, animal feed) which are shipped to wholesalers, retailers, and/or sold to consumers in other countries.

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**Total for question 2: 7 points**

**Question 3: Two Stimuli****7 points**

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**(A) Describe the spatial pattern of the companies and institutions shown in the inset map. 1 point**

Accept one of the following:

- A1. Agglomeration of similar economic activities.
- A2. Cluster or clustering of similar economic activities.
- A3. The concentration of similar activities along transportation routes (e.g., rivers, arterial roads).
- A4. There is a concentration of similar economic activities within a metropolitan area in Massachusetts.

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**(B) Describe the concept of a growth pole. 1 point**

Accept one of the following:

- B1. A location where research, development, and/or innovation (e.g., new product or process) generate new products and/or services.
  - B2. An institution (e.g., university, hospital, laboratory) where scientific discoveries, inventions, and/or innovations create new economic opportunities.
  - B3. An area where new businesses start up and/or businesses locate to participate in the emerging market and/or attract investment for a new product and/or service.
  - B4. An area where new businesses start up and/or businesses locate to access a specifically skilled or educated pool of labor.
  - B5. An area designated by a government to facilitate economic activity for a specific purpose.
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**(C) Explain ONE way education infrastructure affects a region’s potential for high-technology development. 1 point**

Accept one of the following:

- C1. Graduates of educational institutions, who remain in the region throughout their careers, can promote regional economic development, create innovative products or services, and/or create a source of wealth for investment in the region’s high-technology businesses.
- C2. Educational institutions can develop a labor force with specialized capabilities that make an area better suited to attract high-technology businesses and/or investors from outside of the region to open new facilities and/or move existing facilities or headquarters into the region.
- C3. Educational institutions can sponsor research for new high-technology products and/or services that can be put into production or operation, thus creating new value, investment, and/or employment for the region’s economy.
- C4. Public investment in technical or specialized worker training, businesses, infrastructure, and/or equipment may divert funds away from investment in other community and social programs that support economic development.
- C5. Lack of educational infrastructure can negatively affect a region’s potential for high-technology development because there may not be a highly educated workforce, a specialized labor force, and/or sponsored research for high-technology products or services.

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**(D) Explain how the pattern shown on the map resembles the galactic city model. 1 point**

Accept one of the following:

- D1. The region has multiple development centers (e.g., edge cities, central business districts [CBDs], suburban CBDs), which are based on a specialized product or service.
  - D2. The pattern of business development is decentralized or spread across the region in different locations.
  - D3. The region has a circumferential, circular belt, or radial highway pattern associated with a galactic city’s transportation landscape.
  - D4. The region contains several highway intersections that serve as nodes for new business districts, central business districts, or development centers.
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**(E) Explain ONE way local economic changes may be a result of deindustrialization. 1 point**

Accept one of the following:

- E1. Deindustrialization may cause the local economy to shift from a manufacturing or industry-based economy (secondary sector) to a service and/or technology-based economy (tertiary, quaternary, or quinary sector).
  - E2. Outsourcing of manufacturing or industrial jobs to other countries can lead to a decline in local employment levels and/or an increase in the percentage of the workforce that is unemployed or receiving unemployment benefits.
  - E3. Increased unemployment in the central business district (CBD), declining investment, and/or declining real estate values may result from the loss of manufacturing firms, jobs, and/or services that were once supported by the former industrial economy.
  - E4. Increases in the local use of post-Fordist methods of production (e.g., highly specialized firms, just-in-time delivery supply chains, flexible production methods) by manufacturing firms can indicate a response to deindustrialization to make industrial production more efficient.
  - E5. Gross national income (GNI) per capita in the area may decrease as local people lose employment in manufacturing and/or are unable to find similar-paying jobs in another economic sector.
  - E6. Unemployment rates or underemployment may increase as local people lose employment in manufacturing and/or are unable to find similar-paying jobs in another economic sector.
  - E7. Cities and communities may see decreased tax revenues due to higher unemployment and/or a decrease in population as people move away to search for jobs elsewhere (e.g., backwash effects, migration).
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**(F) Explain how the products and services listed in the table demonstrate that this economy has moved into the quaternary sector. 1 point**

Accept one of the following:

- F1. The high-technology nature of the products and services listed demonstrates that the economy has moved into the quaternary sector.
- F2. The products and services rely on the knowledge and/or intellectual capabilities of the firms, institutions, and/or workforce that develop these advanced technologies.
- F3. The products and services are the outcomes of a highly educated, specialized, and/or creative class of employees who develop innovative solutions to consumer needs.
- F4. The products and services are dependent on the use of information technology for firms, institutions, and/or the workforce to be more productive, efficient, and/or cost-effective.

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**(G) The map focuses on a regional scale. Explain a possible limitation of drawing country scale conclusions from a regional scale map. 1 point**

Accept one of the following:

- G1. Attempts to analyze research data from one scale of analysis to make claims about another scale of analysis may be inaccurate due to the change in scale's effect on spatial analysis.
- G2. Making research assumptions from map data at one scale of analysis to make claims about another scale of analysis may result in an incorrect calculation or an ecological fallacy due to the change in scale.
- G3. The region can be specialized in a sector or type of production that is different from the economic sectors or production types found in other regions of the country.
- G4. The region can have a long and continuing tradition of valuable or productive sectors that are very different from the changing mix of economic sectors that characterize the country's economy.

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**Total for question 3: 7 points**