

Question 2: One Stimulus**7 points**

A (Point 1)	Identify the recent trend in fertility shown in the population pyramid. Examples of acceptable responses may include the following: - A1. Japan's fertility rate has declined. - A2. Japan's birth rate has declined. - A3. Fewer children are being born. - A4. Japan likely has a negative RNI. - A5. Japan has low, slow, zero, and/or negative population growth.	1 point
B (Point 2)	Based on the data shown in the population pyramid, describe the ratio of males to females in the Japanese population age 80 and above. Examples of acceptable responses may include the following: - B1. There are more women than men or there are fewer men than women. - B2. In the cohorts age 80–100+, the male population is approximately 3 percent to 4 percent of the total population, while the female population is approximately 6 percent to 7 percent of the total population. - B3. In the cohorts age 80–100+, the male population is approximately half the size of the female population.	1 point
C (Point 3)	Describe one process that drives urbanization. Examples of acceptable responses may include the following: - C1. Migration to cities or urban areas and/or increases in the population of a country, a city, metropolitan area, or an urban area. - C2. Economic growth, trade, industrialization, and/or development in a country, metropolitan area, or an urban area. - C3. Expansion of transportation and/or communication systems in a country, a city, metropolitan area, or an urban area. - C4. Government development policies, zoning, and/or urban planning in a country, a city, metropolitan area, or an urban area. - C5. Advancements in technology and/or infrastructure in a country, a city, metropolitan area, or an urban area. - C6. Situation (a location's relationships to other places) influences the function and/or growth of cities.	1 point

D (Point 4)	Describe one factor that may lead to a decrease in total population within a more developed country. Examples of acceptable responses may include the following: - D1. Declining fertility may lead to a decrease in the number of children born and/or to a decrease in total population. - D2. Increasing mortality may lead to a higher death rate and/or to a decrease in total population. - D3. Out-migration or emigration may lead to a decrease in total population. - D4. Social or cultural factors (e.g., access to education and employment) may lead to decreased fertility and/or a decrease in total population. - D5. Political factors (e.g., war, conflict, immigration policies) may lead to decreased fertility and/or a decrease in total population. - D6. Medical factors (e.g., epidemics, access to health care) may lead to decreased fertility, increased mortality, and/or a decrease in total population. - D7. Environmental factors (e.g., natural disasters, extreme weather, limited resources, pollution) may lead to increased mortality, and/or a decrease in total population. - D8. Economic factors (e.g., high unemployment, economic recessions, high cost of living, limited social programs) may lead to a decrease in total population.	1 point
E (Point 5)	Explain how a country's population pyramid can be used to predict the future needs of the population. Examples of acceptable responses may include the following: - E1. Pyramids can be used to predict future needs by analyzing pyramid shapes or population growth and/or decline to predict markets for goods or services. - E2. Pyramids can be used to predict future needs by indicating an aging population, which will lead to increased demand for goods and services for older people (e.g., medical care, housing, products marketed to older citizens). - E3. Pyramids can be used to predict future needs by indicating lower fertility or birth rates, which will lead to decreased demand for products and services for children (e.g., childcare, schools, recreational activities, products marketed to children). - E4. Pyramids can be used to predict future needs by indicating a rapidly growing population and/or high birth rates, which will lead to increased demand for goods and services for children and/or families (e.g., childcare, schools, recreational activities, products marketed to children). - E5. Pyramids can be used to predict future needs by indicating an aging population and/or low birth rates, which may lead to labor shortages and/or a need for migrants to provide goods or services. - E6. Pyramids can be used to predict future needs by indicating a rapidly growing population and/or high birth rates, which may lead to an increase in the labor force and/or economic growth.	1 point

F (Point 6)	Explain why the population pyramid provides limited information about immigration to cities in Japan. Examples of acceptable responses may include the following: - F1. Population pyramids do not provide data on migration, or population pyramids do not provide data on migration to Japan. - F2. Population pyramids do not provide data on migration to cities, or population pyramids do not provide data on migration to cities within Japan. - F3. This population pyramid shows country-scale data rather than city-scale data or data about the urban population in Japan. - F4. Population pyramids are used to assess population growth and/or decline or used to predict markets for goods and/or services, but they are not used to assess migration data. - F5. Population pyramids include data on age-sex structures, but they do not include migration data.	1 point
G (Point 7)	Explain the degree to which a country's population growth rate may be affected by a pronatalist policy. (Response must indicate the degree [low, moderate, high] and provide an explanation.) Examples of acceptable responses may include the following: Statement of a moderate or high degree AND - G1. Pronatalist policies promote an increase in fertility through social programs and/or incentives. - G2. Pronatalist policies may increase the population growth rate by allowing parents to keep their jobs, getting paid while taking care of their children, and/or not having to return to work right away. - G3. Pronatalist policies may attract immigrants who find policy incentives (e.g., paid parental leave) attractive, increasing the population growth rate. OR Statement of a moderate or low degree AND - G4. Pronatalist policies may have little or no effect on population growth rates if the cost of raising children is still high and/or if parents lack adequate time to care for them. - G5. Pronatalist policies may have little to no effect on population growth rates if the policies are not granted equally to all residents. - G6. Pronatalist policies may have little impact on population growth rates because of differing societal norms (e.g., individual choice, concerns over environmental impact) and/or family structures.	1 point

Question 2: One Stimulus		7 points
A (Point 1)	Using the data in the charts, identify the largest food export category between the two countries. Acceptable identification: A1. Grains, fruits, vegetables.	1 point
B (Point 2)	Using the data in the charts, describe the difference between the two countries in the meat, dairy, and seafood category. Examples of acceptable responses may include the following: - B1. The amount of exports or trade from Country X is larger. - B2. The amount of exports or trade from Country Y is smaller. - B3. Exports or trade from Country X is \$5.1 billion, while exports or trade from Country Y is \$2.3 billion. - B4. The amount of exports or trade from Country X is approximately twice as much as exports or trade from Country Y.	1 point
C (Point 3)	Define the concept of comparative advantage. Examples of acceptable responses may include the following: - C1. Comparative advantage describes a situation in which an individual, business, or country can produce a good or service more efficiently and/or at a lower opportunity cost than another producer. - C2. Comparative advantage occurs when countries choose to specialize in producing goods or services that they can produce more efficiently, effectively, and/or that have a lower opportunity cost.	1 point
D (Point 4)	Describe one effect of Green Revolution technologies on food supplies in developing countries. Examples of acceptable responses may include the following: - D1. Green Revolution technologies (e.g., high-yield seeds, increased use of chemicals, mechanized farming) increased food supplies. - D2. Green Revolution technologies increased the amount of farm production and/or the agricultural yield of food crops and/or animals. - D3. Pesticide use led to pesticide resistance in some species, decreasing food production. - D4. Irrigation and/or the use of mechanized equipment led to soil erosion and/or loss of soil fertility, decreasing food production. - D5. Monocropping, mechanization, and/or the decrease in smaller farms changed the types of food produced and/or affected food supplies.	1 point

E (Point 5)	Explain how advances in agricultural technology may increase the carrying capacity of land.	1 point
Examples of acceptable responses may include the following:		
- E1. Advances in agricultural chemicals (e.g., fertilizers, pesticides) may allow an area of land to produce more resources and support a larger population. - E2. Carrying capacity may increase through mechanization (e.g., tractors, vehicles, irrigation, processing equipment), which may allow an area of land to produce more resources and support a larger population. - E3. Carrying capacity may increase through the use of high-yield seeds, which may allow an area of land to produce more resources and support a larger population. - E4. Carrying capacity may increase if agricultural technology is used to bring areas with low population density into agricultural production leading to higher population density. - E5. Carrying capacity may increase through the use of agricultural technology (e.g., precision agriculture, GPS) that improves growing conditions or optimizes agricultural practices, leading to the production of more food and the ability to support a larger population.		

F (Point 6)	Explain the degree to which the economies of Country X and Country Y are interdependent. (Response must indicate the degree [low, moderate, high] and provide an explanation.)	1 point
Examples of acceptable responses may include the following:		
Statement of a moderate or high degree		
AND		
- F1. Country X and Country Y are highly interdependent due to the billions of dollars of agricultural trade occurring between the two. - F2. Both countries are dependent upon one or more export commodities traded with each other (exports, imports) and/or agriculture is used as an economic strategy for both countries. - F3. Trade in agricultural goods between Country X and Country Y is part of the global supply chain and/or part of the global food distribution network that links producers and consumers.		
OR		
Statement of a moderate or low degree		
AND		
- F4. The amount of trade between the two countries for agriculture may be small in comparison to the trade in other sectors (e.g., manufacturing, services). - F5. The agricultural trade data in the charts do not provide enough information to demonstrate interdependence because agriculture is only a portion of the total amount of trade (of all goods and services).		
G (Point 7)	Explain how the charts provide limited information about economic development.	1 point
Examples of acceptable responses may include the following:		
- G1. The charts provide data for only one sector of the economy and/or do not include other measures of social and/or economic development (e.g., GDP, GNP, GNI per capita, sectoral structure, population data). - G2. Export data indicate the production of goods for international trade but not the production of goods for the domestic economy. - G3. Export data do not include non-food products (e.g., cotton) which contribute to economic development. - G4. The charts do not have a temporal or spatial dimension (e.g., a year, timeframe, variation by different areas) which is essential for understanding trends or making comparisons (e.g., uneven development). - G5. The charts show that Country Y has higher agricultural exports than Country X, but the charts do not show that Country X has a more developed economy.		

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).

(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.

- (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.

- (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.

- (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.

Total for question 1: 7 points