

AP[®] HUMAN GEOGRAPHY

2011 SCORING GUIDELINES

Question 2

In 1798 Thomas Robert Malthus published *An Essay on the Principle of Population* in which he argued that population growth will inevitably outpace food production, resulting in widespread famine.

Part A (4 points: 1 point for each reason identified [ID] and 1 explanation point per ID)

Identify and explain TWO reasons why some geographers today believe Malthus' theory can be used to predict future population issues.

ID: Population has been rising quickly. **OR**
Population has generally grown as predicted by Malthus.

Explanation

- Limited use of contraception.
- Political policies, economic decisions, cultural beliefs that support population growth.
- Demographic transition model, referring to Stage 2 and/or early Stage 3.

ID: Food supply has increased, but it has not kept up with population increase. **OR**
Food supply has generally grown as predicted by Malthus.

Explanation

- Failure to adopt agricultural innovation, owing to political policies, economic decisions, cultural beliefs.
- Conversion of farmland for urban use.
- Environmental degradation such as desertification, overgrazing, clear cutting, soil erosion, unavailability of fresh water.
- Conversion of life-supporting crops to cash crops (tobacco, sugar, cotton, tea, coffee).
- Rising fuel costs will slow down growth of food production and distribution.
- Climate change will decrease production.

ID: There are other limiting factors on population in addition to food.

Explanation

- Because of resource overuse and/or environmental degradation, we are in danger of exceeding the carrying capacity (clean air, fossil fuel, water, and other resources).

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Question 2 (continued)

Part B (4 points: 1 point for each reason identified [ID] and 1 explanation point per ID)

Identify and explain TWO reasons why some geographers today believe Malthus' theory cannot be used to predict future population issues.

ID: Population growth has not been rising geometrically/exponentially. **OR**
Population has generally not grown as predicted by Malthus.

Explanation

- Expanded use of contraception.
- Political policies, economic decisions, cultural beliefs that limit population growth.
- Demographic transition model, referring to late Stages 3, 4, and/or 5 (declining birth rate).

ID: Food supply has grown faster than predicted by Malthus. **OR**
Carrying capacity has expanded.

Explanation

- New technologies, such as: mechanization, factory farming, industrial agriculture, agribusiness, use of chemicals, irrigation, GPS.
- Greater efficiencies, such as: larger farms, consolidation of farms, mechanization, multicropping.
- Green Revolution, genetically modified crops, multicropping, improved seeds, high-yielding cultivars.
- Expansion of agricultural lands.
- Human ability to create new techniques.

ID: Our ability to preserve food and/or distribute food to areas of need is much greater than during Malthus' time.

Explanation

- Improvements in any and all methods of transportation (highways, containerization, refrigerated trucks).
- Improvements in food preservation (refrigeration, packing, processed food).

A. Geographers believe that Malthus's theory can be used to predict future population issues because for many countries in the lower stages (2-3) of the demographic transition model the population of people is still growing exponentially, despite the decreases in birth rate for some. For countries in Africa such as Mali there is not a high production commercial farming industry but there is a steadily growing population of people due to a lack of contraceptive use. This ~~to~~ could potentially lead to the widespread famine Malthus predicted.

Additionally, it could be argued that because of the growing advancements in medical treatment across the world much fewer people are dying from disease and even "old age" than ever before. This leads to the natural rotation of people in the world to become unbalanced because of the high life expectancy. More people are having to be fed for longer amounts of time than ever before, which could lead to a lack of available food.

B. The third agriculture revolution is still in place meaning that commercial farming is still extremely prominent in society. People are able to produce a greater amount of food than ever before thanks to large monoculture farms, feedlots, and GMOs. Although there is not a great variety in the food produced compared to the past, there is plenty of it which will easily serve as subsistence for the

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Write in the box the number of the question you are answering on this page as it is designated in the exam.

growing population of people.

Additionally, many ~~country~~ countries are developed and have reached the latter stages of the DTM (late stage 4; some considered to have reached 5). This means that in ~~front~~ countries such as Italy there is actually a negative population growth where there is fewer than two children being produced per family. If other countries follow along this path, the world population will no longer continue to grow exponentially, but instead decline requiring much less food to be produced and potentially a surplus of food.

2A. Some geographers believe Malthus' theory can be used to predict future population issues because historically, food production has increased ~~at an~~ in an arithmetic way and population has grown exponentially. These two concepts were the basic tenets of Malthus' theory therefore geographers feel if the population growth and food production grew in the way Malthus proposed, his conjecture that ~~a~~ eventually population will surpass food production, causing problems. Geographers also believe Malthus' theory still applies because certain areas struggle from the problems Malthus predicted. For example, sub-Saharan Africa has trouble producing enough food due to ~~weather~~ ^{environment} and climate conditions. However, this region has high population growth. ~~As~~ As Malthus predicted, sub-Saharan Africa experiences much famine due to food shortage.

B. Some geographers believe Malthus' theory does not hold true today because population is not increasing everywhere. In places like Western Europe, population is starting to decline. Contradicting Malthus' statement that population growth is exponential. Even the countries who are experiencing population growth are not ~~growing~~ growing at as fast a rate as in the

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2 B 2 of 2

2 B. part. On the global level, population ~~increased~~ increased exponentially up until the 1960's but now the rate of population growth is slowing down indicating that the population will eventually stabilize. ~~and a small amount~~ Some geographers think Malthus' theory cannot be used to predict future population issues because food production has recently become more efficient. During the Green Revolution, increased use of fertilizers, hybrid seeds, and irrigation led to greater food production. These geographers argue that hunger is caused by improper distribution of food not because of a growing population with not enough food like Malthus stated.

#2

Write in the box the number of the question you are answering on this page as it is designated in the exam.

~~Answer~~

A. People today still believe that Thomas Malthus's theory is still a problem because the population is growing exponentially, while food production is growing arithmetically. This is a huge problem because the population growth of the world is growing so much faster than food production, which is growing at a steady rate. Therefore, many people still believe that we will soon run out of food because we can't produce fast enough to sustain the world population. Also, neomalthusians, who are people today that still think Malthus's theory is possible, think that this is a huge problem because of outsourcing, meaning we will run out of supplies and food products and the world population will eventually die out due to lack of nutrition.

B. Although, many people today believe that Malthus's theory ~~was~~ is inaccurate because, with increasing population growth, we have begun to use chemical fertilizers and ~~chemicals~~ learned how to produce bigger and better products, faster. The Green Revolution was when the use of chemical fertilizers and other products such as, began to come into play. This Revolution has helped us greatly with our food production and agriculture and has turned it into agribusiness. In agribusiness, we have begun to think less about the quality of the product and more about the quantity and mass-production, with the use of chemical fertilizers. Also, Malthus's theory is inaccurate because of the increase in technology and biotechnology, meaning that the agriculture has turned into mass consumption to sustain the population with food. Biotechnology has been an increasing factor, which also started in the Green Revolution with the use of new technology to create bigger and better products that can be made and produced much faster.

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Question 2

Overview

This question was structured in a way that required students to present both sides of the discourse on the future of world population growth and food supply. Students were asked to frame their discussion around the precepts of the Malthusian essay on population growth. Students were given a summary of the Malthusian argument and did not need to base their essays on recall. The question did not force students to choose sides in this debate but rather to present evidence that they understood both views about the future relationships between population growth and food supply.

Sample: 2A

Score: 8

This essay demonstrates a comprehensive understanding of Thomas Malthus' theory about population growth and food production and earned full credit (4 points in part A and 4 points in part B). In part A the response received 1 identification point for stating that "the population of people is still growing exponentially" and 1 explanation point for understanding that "Malthus's theory can be used to predict future population issues because [of the] many countries in the lower stages (2–3) of the demographic transition model." The response was awarded 2 points for correctly indicating that a steadily growing population "could potentially lead to the widespread famine Malthus predicted" and for the related explanation that in some countries "there is not a high production commercial farming industry." In part B the essay received 1 point for correctly identifying a reason that does not support Malthus' theory: "there is plenty of it [food] which will easily serve as subsistence [*sic*] for the growing population of people." An additional point was gained for explaining that "[p]eople are able to produce a greater amount of food than ever before thanks to large monoculture farms, feedlots, and GMOs." The response merited 1 point for noting that "the world population will no longer continue to grow exponentially," and 1 more point was earned for the explanation that "many countries are developed and have reached the latter stages of the DTM (late Stage 4; some considered to have reached 5)."

Sample: 2B

Score: 6

The essay received partial credit in part A (3 points) and partial credit in part B (3 points). In part A 1 point was received for correctly stating, "population has grown exponentially" as a reason that Malthus' theory has predictive value. An additional point was awarded for explaining that "historically, food production has increased in an arithmetic way." The response received no credit for an additional identification point in this part, but 1 point was granted for explaining that "sub-Saharan Africa has trouble producing enough food due to environment and climate conditions." In part B the essay received 1 point for correctly identifying a reason that does not support Malthus' theory: "population is not increasing everywhere." Thus, population is starting to decline in some areas, which contradicts Malthus' ideas. No explanation was provided in support of this statement, however, so no point was earned. The response merited 2 points for identifying the greater efficiency in food production as another reason to question the theory, along with a corresponding explanation that attributes the increase in production to the Green Revolution and the "increased use of fertilizers, hybrid seeds, and irrigation."

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Question 2 (continued)

Sample: 2C

Score: 4

The essay received partial credit in part A (2 points) and partial credit in part B (2 points). In part A the response received 2 identification points for correctly observing in support of Malthus' theory that "population is growing exponentially while food production is growing arithmetically." No explanation points were merited. In part B the essay earned 1 identification point for correctly stating, in opposition to the theory, that "agriculture has turned into mass consumption to sustain the population with food." An additional point was awarded for explaining, "we have began [*sic*] to use chemical fertilizers and learned how to produce bigger and better products, faster." No additional identification or explanation points were granted.