Question 1

7 points: 1 + 4 + 2

A. Describe information used to map food deserts. (1 point)
Description must include two types of spatial data; select from the following:

1. Geographers can map access to a resource (grocery stores, supermarkets, supercenters) and where people live (distance from a store)
2. Geographers can map where stores are located versus socioeconomic and demographic information (income, race, and age)
3. Geographers can map the location of local residents and access to public transportation or a private vehicle

B. Identify and explain TWO reasons food deserts exist in urban areas within developed countries. (4 points maximum: [1 + 1] + [1 + 1]) Identify and explain a reason for food deserts from TWO of the following:

<table>
<thead>
<tr>
<th>Identification (1 point)</th>
<th>Explanation (1 point)</th>
</tr>
</thead>
</table>
| Economic reasons, poverty, low income | B1. People in poverty may not be able to afford or have access to healthful foods even if available and may turn to cheaper fast food  
B2. Less incentive for large grocery stores to open in poor neighborhoods, as those residents are seen to have less money to spend on food  
B3. Declining investment in low-income neighborhoods or inner suburbs may result in a closing of grocery stores |
| Social or cultural reasons | B4. Immigrant residents may find it difficult to locate foods that are culturally appropriate for them. |
| Transportation access | B5. Lack of automobiles can result in lack of access to grocery stores because most large grocery stores are in the suburbs.  
B6. Lack of public transportation to areas with supermarkets can limit access. |
| Demographic reasons | B7. In areas such as retirement communities, elderly residents on fixed incomes many not be able to afford the healthful food they need.  
B8. Elderly residents may not have cars to access supermarkets.  
B9. Some stores may avoid neighborhoods with low income, minority, or immigrant populations. |
| Political or historic reasons | B10. Land-use policies (such as zoning) alter distribution of food stores, resulting in fewer stores in cities and more in the suburbs  
B11. Institutional bias that prevents or leads to lack of investment in areas over time (e.g., banks, insurance, planning, and construction) |
**C. Identify and explain ONE impact of living in a food desert.**  
(2 points [1 + 1]) Identify and explain from ONE of the following:

<table>
<thead>
<tr>
<th>Identification (1 point)</th>
<th>Explanation (1 point)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health impacts</strong></td>
<td>C1. Likely to have unbalanced diets and may suffer from malnutrition or undernutrition, which may affect long-term health issues and childhood development</td>
</tr>
<tr>
<td></td>
<td>C2. Diet-related health problems, such as obesity, diabetes, cardiovascular disease, hypertension and/or cancer</td>
</tr>
<tr>
<td></td>
<td>C3. Food deserts in minority communities may exacerbate other socioeconomic problems (e.g., lack of social mobility)</td>
</tr>
<tr>
<td><strong>Social or cultural impacts</strong></td>
<td>C4. Desire for unhealthful foods can be difficult to overcome if they are more readily accessible.</td>
</tr>
<tr>
<td></td>
<td>C5. Available foods may not be culturally appropriate for the local population.</td>
</tr>
<tr>
<td></td>
<td>C6. Food insecurity may impact educational attainment</td>
</tr>
<tr>
<td></td>
<td>C7. Residents work together for community gardens, community supported agriculture, and other alternative food access options</td>
</tr>
<tr>
<td></td>
<td>C8. People in food deserts pay more for food especially healthier foods, whereas unhealthful foods (e.g., fast food) are cheaper and more plentiful</td>
</tr>
<tr>
<td><strong>Economic impacts</strong></td>
<td>C9. People in poverty spend more on food as a percentage of their income and may not get sufficient healthful food</td>
</tr>
<tr>
<td></td>
<td>C10. Cost of food for people living in poverty or on low wages may result in food insecurity</td>
</tr>
<tr>
<td></td>
<td>C11. Smaller, convenience, or dollar stores have a higher availability of cheap, processed foods and a lower availability of healthful foods often at higher prices</td>
</tr>
<tr>
<td></td>
<td>C12. May positively lead to increase in food delivery services (new food businesses), urban policies (tax incentives, grants and subsidies that encourage access to healthful food)</td>
</tr>
<tr>
<td></td>
<td>C13. Lack of time to shop (e.g., family or caregiver constraints or nontraditional households with time constraints)</td>
</tr>
</tbody>
</table>
A. Geographers can analyze aspects of an area such as distance to the nearest fresh market and average income for a region as a means of determining what areas may be considered food deserts.

B. Food deserts often occur in poorer communities. There, most of the residents who would utilize any shopping places in the area cannot afford the increasingly high prices for fresh, healthy food. Therefore, it becomes common practice that community members frequent inexpensive—though typically unhealthier—options such as low-price, chain fast-food restaurants. As this occurs, the corporations running most local grocery empires today (Kroger, Walmart, Aldi, etc.) examine the places in their chains where they earn less, and since no one is shopping at the stores in this area or only buying inexpensive goods, they are quick to shut down that location, leaving the community with only unhealthy options.

This unavailability of healthy options in communities leads to a flood of health problems, such as Type II Diabetes, a myriad of heart conditions, and rapidly accelerating rates of debilitating obesity. This inhibits the work community members can do, ensuring their place in the economy as low-class by preventing them from earning the funds to move to an area where healthier
options are available.
A) To map food deserts, geographers collect local income averages and relative location to food markets.

B) One reason why food deserts exist in urban areas is because families with low-income live in urban areas and can not afford non-GMO foods. Another reason why food deserts exist in urban areas can be a result of a lack of proximity to areas where healthy and fresh food is produced.

C) Living in a food desert can cause malnutrition, especially to growing children who need a balanced diet. Living in a food desert would not provide adequate nutrition.
A Where grocery stores are located help geographer map food deserts. The amount of access that people have in one area to food. The population of the areas

B A grocery store in a city is a food desert because they have to go to another city to get groceries. Not enough population can lead to grocery stores and other food suppliers to coming to the towns/cities, because they won't have enough people to support them.

C An impact on living in a food desert is having to travel a greater distance to get food. You have to pay for traveling ex-gas and you have to pay for your groceries. It takes a longer time out of your day to go and get your food.
Question 1

Note: Student samples are quoted verbatim and may include spelling and grammatical errors.

Overview

Students were expected to learn about a variety of issues associated with the growth and decline of urban communities, including economic and social problems such as limited access to food stores and public services. Students were expected to be able to evaluate problems associated with urban sustainability. The term “food desert” was defined in the stem of the question. This allowed students to demonstrate their ability to use and interpret geospatial data and to analyze quantitative and qualitative data to understand the demographic and population characteristics of cities.

In part A students were asked to identify the kinds of information geographers would use to map a food desert. In part B students were expected to identify and explain two reasons for food deserts in urban areas in developed countries. In part C students were asked to identify and explain one impact of living in a food desert.

Skills required of the students were (1) the ability to apply spatial thinking to a salient problem such as food access and food affordability in a developed city; (2) the ability to identify and then describe at least two types of spatial data that would be used to map a food desert; (3) the ability to apply their knowledge of economic, cultural, and political geography to an urban issue; and (4) the ability to evaluate the impact that a lack of affordable and healthful foods would have on someone living in a food desert.

Sample: 1A
Score: 7

The response earned full credit and demonstrates a comprehensive understanding of the issues regarding food deserts. The response earned 1 point in part A for correctly describing that geographers use socioeconomic and demographic information such as distance to the nearest fresh markets and average income of an area to determine if it should be classified as a food desert. (A2) The response earned 1 point in part B for identifying low income areas as an economic reason for food deserts. (Economic ID) The response earned an additional 1 point in part B for explaining that low income residents would not be able to afford higher prices for fresh, healthy food and would likely turn to lower price options and fast food restaurants. (B1) The response earned 1 point in part B for identifying a second economic reason for food deserts. (Economic ID) The response earned an additional 1 point in part B by explaining that grocery corporations may shut down stores in low income communities. (B3) The response earned 1 point in part C for identifying health problems as an impact of food deserts. (Health impacts ID) The response earned an additional 1 point in part C for explaining that the lack of availability of healthy food options can lead to numerous health issues such as obesity, Type II diabetes, and cardiovascular disease. (C2)

Sample: 1B
Score: 5

The response earned 1 point in part A for correctly stating that geographers use socioeconomic and demographic information, such as local income averages and relative locations of grocery stores, to map food deserts. (A2) The response earned 1 point in part B for identifying low income areas as an economic reason for food deserts. (Economic ID) The response earned an additional 1 point in part B for explaining that low income residents would not be able to afford higher prices of non-GMO or other premium foods (B1). The response did not earn an additional point in part B as the description was about proximity of food producers to urban areas, which is not a reason for the existence of food deserts. The response earned 1 point in part C by identifying
that residents of a food desert may not have adequate nutrition. (Health impacts ID) The response earned an additional 1 point in part C by explaining that people in a food desert, particularly children, may not have access to foods that create a balanced diet. (C1)

Sample: 1C
Score: 3

The response earned 1 point in part A for describing where grocery stores are located and the access people have to food in a particular area as information geographers use to map a food desert. (A1) The response earned no credit in part B as the identifications and explanations are about not having grocery stores because of low population or a lack of food suppliers. These are not factors that determine why a food desert exists. The response earned 1 point in part C for identifying increased costs associated with transportation as an economic impact. (Economic impacts ID) The response earned an additional 1 point for explaining that someone living in a food desert would have to travel a greater distance to purchase food, which would require more time of out their day. (C13)