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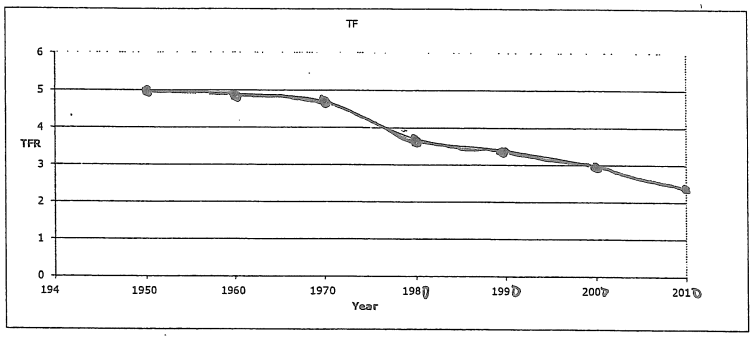
Question 4

(a) Create a graph of the data from table 1 below on the axes provided.

(Two points can be earned: 1 point for correctly plotting the data [no more than one data point may be misaligned], and 1 point for correctly setting up BOTH axes with a consistent scale interval.)

Notes: Bar graphs are acceptable. Students need not connect the data points. Award no credit for flipped axes.



(b) Identify and discuss TWO of the causes for the trend in the worldwide TFR that you graphed in part (a).

(Three points can be earned: 1 point for each valid cause, and 1 point for discussion of a valid cause—cause and discussion MUST BE LINKED. Two points maximum may be earned for causes; 1 point maximum for discussion. A single discussion point may be earned by itself.)

Cause	Discussion
Increased/improved family planning	• Fewer pregnancies/control of fertility/choice in number of children born
Increased education for women (stay in school longer)/improved social status of women	• Delay having children/choosing to have fewer children
More women enter the workforce	• Delay having children
Reduced need for children in workforce/on farm	• More industrialization/less agriculture/increased urbanization
More industrialization/less agriculture/increased urbanization	• Reduced need for children in workforce/on farm

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Question 4 (continued)

Cause	Discussion
Improved health care (lower infant mortality)	• More children will survive to adulthood
People marry later	• Childbearing delayed/fewer children
Changing cultural values	• Socially acceptable to have fewer children
Government policies that restrict number of children allowed per woman	• Countries are facing overpopulation issues
Increased cost of raising children	• Standard of living and education costs have increased
Increased urbanization	• Lessens living space for more children

(c) Consider the data in table 2 above. Identify and discuss TWO economic or societal factors that account for the difference between the TFR of Kenya and that of the United States.

(Four points can be earned: 1 point for each correct factor, and 1 point for each correct discussion of the factor. Discussion points may be earned without an identified factor. However, if factors are given, discussion and factors MUST BE LINKED.)

Factors (Societal or Economic)	Discussion
Kenya has a much higher infant mortality rate.	• There is a shortage of prenatal and pediatric care due to poverty in Kenya. • Kenyans have more children to ensure that some survive.
Kenya is more agricultural (second stage of demographic transition).	• In Kenya more children are needed to help farm.
Kenya is a less-developed country (lower per-capita income)/poorer/nonindustrialized.	• Children provide income to the family. • Contraceptives are not affordable.

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Question 4 (continued)

Factors (Societal or Economic)	Discussion
Women in Kenya lack education and job opportunities.	• Women in Kenya have fewer career/work choices so they have children at an earlier age than women in the United States do. • Women in Kenya do not delay childbearing, in contrast with women in the United States who often delay starting a family due to the high cost of childcare.
There is no pension system to support people as they age in Kenya.	• More children are needed to support parents in old age.
There is less education about family planning in Kenya.	• There is less ability to control fertility.
Cultural values favor larger families in Kenya.	• More children mean greater social status.
Women in Kenya have a low social status /marry at an earlier age.	• Women have little or no choice/control of their fertility; they have more years of childbearing.
There is a preference for male children in Kenya.	• People have more children to get as many sons as possible, because sons will continue to support the family.
The cost of raising a child in the United States is much higher than in Kenya.	• People in the United States choose to have smaller families.
Abortion is illegal in Kenya.	• Results in more births.
Religious values in Kenya prohibit contraception/abortion.	• Results in more births.

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Question 4 (continued)

(d) Describe TWO human activities related to the rapidly growing world population that are having an impact on Earth's biodiversity.

(Two points can be earned: 1 point for each accurate description. The student must link a specific activity to a specific impact on biodiversity.)

- Deforestation for the following purpose destroys habitats and reduces biodiversity (may use two activities for 1 point each):
  - farming (i.e., creation of monocultures);
  - housing/development (i.e., urbanization);
  - fuel (wood);
  - fossil-fuel recovery (mining and drilling).
- Fossil-fuel burning releases carbon dioxide resulting in climate change, altering global/regional/local temperature and precipitation patterns leading to reduction of biodiversity within ecosystems where organisms have very specific climatic requirements for survival.
- Pollution (student must identify specific contaminants linked to human activity that have a negative impact on species and biodiversity).
- Intensive fish farming spreads parasites and disease to native species, reducing biodiversity.
- Diversion of freshwater for agricultural, municipal, and industrial use reduces water supply for biodiverse freshwater ecosystems.
- Damming of rivers makes it difficult for species that breed/spawn upstream (e.g., salmon) to reproduce, reducing biodiversity.
- Overfishing leads to small, unsustainable populations of fish species, reducing biodiversity.
- Building landfills for increased amounts of trash destroys habitat, reducing biodiversity.
- Poaching of wild animals (e.g., bush meat) due to increased human population and demand for food leads to dwindling populations that may not be sustainable.
- Using genetically modified crops to increase yield of food crops can negatively impact other species (e.g., monarch butterfly larvae can be killed when they ingest toxin-containing genetically modified corn pollen that has settled on milkweed leaves near genetically modified corn fields).