**MODULE 2: CHAPTER 5**

SOLUTIONS

**Question 1 In your notebook, complete the**

**table in Figure 5–18 to summarize the**

**characteristics of each stage of demographic transition.**

**Question 2 Briefly summarize the two reasons**

**why the onset of early transition and late**

**transition occurred later and faster in**

**developing countries.**

Early transition involves a decline in death rates

and late transition involves a decline in birth rates.

These stages occurred later in some countries

than in others for the following reasons:

1. They did not have access to sanitation and disease control as early as other countries. As a consequence, death rates declined later than in countries where scientific and medical technology was more advanced. They entered early transition later than other countries.
2. Economic development was slower in some countries. Their agriculturally based economies traditionally required large families to work the land. As a consequence, birth rates declined later compared to those in countries where economic development was more advanced. They entered late transition later than other countries. Developing countries experience the onset of early transition and late transition faster than Old Core countries did because:
3. Knowledge and technology associated with water purification, sanitation, and disease control that had already been developed in Old Core countries was brought to developing countries where it was quickly implemented. The development and implementation of these technologies took place over a relatively long period of time in Old Core countries, and as a consequence, the onset of early transition

occurred much more slowly in these countries.

In developing countries, the decline in the death

rate occurs more rapidly than it ever did in Old

Core countries because of the availability of

new knowledge. Developing countries therefore

enter early transition more quickly than did Old

Core countries.

 Rapid industrial development, which frequently occurs as a result of investment from Old Core countries, has caused the rapid movement of people from farms to cities in search of jobs. In the cities, fewer children are born i) because children are no longer required to supply labour on family farms and ii) because children in cities are a greater financial burden than children in rural areas.

 Furthermore, methods of birth

control developed in Old Core countries have

been introduced to developing countries. As a

result, the decline in the birth rate has occurred

more rapidly in developing countries than it did

in Old Core countries. Developing countries

therefore enter late transition more quickly than

did Old Core countries.

**Question 3 Contrast the factors responsible**

**for “death control” (the decline in the death**

**rate) with birth control during demographic**

**transition. Consider such factors as improved infant nutrition and the care of aging parents.**

***Death Control***

* deaths from some diseases substantially

reduced by advances in medical technology

such as the invention of vaccines acceptance of germ theory of disease (i.e., diseases come from microscopic organisms)

* scientific knowledge that supports the

importance of personal hygiene, clean water,

and proper handling of human and animal sewage

***Birth Control***

* a higher survival rate for children due to

advances in medical technology and

acceptance of germ theory means that fewer

babies are needed

* greater financial burden of children in urban societies because of the limited opportunities to contribute significantly to the family income
* the changing character of family life; it became impractical for women to have large numbers of children when they were working
* families in urban societies became more affluent, and it became less necessary to have large numbers of children to help support the family

Note! “modern birth control techniques”

as a factor of demographic transition, point out

that modern technological means of birth control

are not necessarily an actual factor in

demographic transition. Birth rates had begun to

decrease in developed countries long before oral

contraceptives were available.

**Question 6 a) Do you think Earth has an**

**ultimate carrying capacity? Explain.**

You will have many views but you should recognize that the definition of carrying capacity must be considered in relation to the quality of life that is considered acceptable.

**Question 6 b) What natural and human factors would influence the magnitude of Earth’s carrying capacity?**

***Natural Factors***

* amount of arable land (for growing food)
* supplies of fresh water
* supplies of raw materials to provide the fuels and materials for manufacturing
* ability of Earth’s environment to recycle our wastes (e.g., air and water pollution)

***Human Factors***

* extent to which people are free to move from one location (country) to another
* extent to which food production can meet world population growth
* extent to which industrial capacity can increase to meet the demands of increased populations before non-renewable resources are depleted
* the standard of living that is considered necessary by various societies Climate change, from both natural and human inputs, will have an impact on Earth’s carrying capacity. At this point, it is difficult to determine what that influence might be.

**Question 6 c) Coal, oil, and natural gas can be used as fuels or as industrial raw materials. What is the difference between these two possible uses? How is the difference related to the idea of a phantom carrying capacity?**

* When these items are used as fuels, they are consumed. When they are used as industrial raw materials, on the other hand, they can be recycled.
* Using non-renewable resources as fuels (i.e. consuming them) produces a phantom carrying capacity because eventually these raw materials will be depleted and the economic and ecological system based on them will collapse. When used as industrial raw materials, however, these items can be reused so they are not depleted and therefore do not produce a phantom carrying capacity.

**Question 7 In a short commentary, describe**

**the implications of the three population**

**projections made by the UN. Consider the**

**environmental implications, economic**

**impacts, and resource demands.**

***High Population Growth Rate***

* high environmental impact from pollution
* inability of economic growth to keep up with high population growth, with the result that the standard of living for many people may decline
* high demand for raw materials, which will rapidly deplete nonrenewable resources

***Low Population Growth Rate***

* low environmental impact from human activities
* greater likelihood that economic growth will keep up with the demands of low population growth
* lower demand for raw materials, which will extend the period of time that non-renewable resources are available

***Medium Population Growth Rate***

* The impact of population growth will be

 between the high- and low-level

 impacts.