1. According to Carolan in *Society and the Environment*:

*a) Roughly 20 percent of world population (all of whom reside in high-income countries) emit the vast majority of greenhouse gases.

b) Poor countries are the main emitters of greenhouse gases.

c) A country like Bangladesh emits the same amount of greenhouse gases into the atmosphere as an affluent country like the United States.

d) We do not keep track of greenhouse gas emissions at the national level.

2. What is the stabilization triangle?

a) What goes under solar panels to hold them up.

*b) A way to think about how we can go about stabilizing CO2 output by 2060.

c) A food pyramid designed for people looking to maintain their current weight.

d) A policy first used in China to stabilize population growth rates.

3. [Blank] refers to policies designed to adapt to climate change while [blank] refers to policies designed to reduce the amount of greenhouse gases being emitted into the atmosphere.

*a) Adaptation/mitigation.

b) Stagflation/motivation.

c) Stabilization/ adaptation.

d) Cooptation/mitigation.

4. Which statement about buildings is true?

a) Buildings consume a small fraction of energy in the world.

b) While buildings consume a lot of energy in the US they consume very little energy at the global level.

*c) Buildings consume a significant amount of energy in the US and even more at the global level.

d) Buildings consume almost all of the energy in the US.

5. Which commodity was singled out in Society and the Environment for being highly sensitive to changes in climate?

*a) Wine grapes

b) Tobacco

c) Marijuana

d) Corn

6. Which of the following would NOT represent a wedge to be used to construct a “stabilization triangle”?

*a) Making lower priced SUVs (sport utility vehicles) so people can afford to fill them up at the fuel pump.

b) Utilizing renewables (e.g., wind and solar) for energy generation.

c) Carbon capture and storage.

d) Increasing household energy efficiency.

7. The “heat island effect” refers to:

*a) The warming effect found in cities due to materials (e.g., pavement, cement, etc.) that absorb heat.

b) When islands in the ocean get warmer due to volcanic activity.

c) Small increases in temperature in homes due to unexplained weather phenomena.

d) The uneven warming that occurs in the microwave.

8. The Yale Project on Climate Change found that:

a) One in 3 Americans are concerned about global warming.

b) Half of American think that global warming is human caused.

*c) Both A and B.

d) None of the above.

9. [Blank] are likely to increase due to climate change:

a) Informal settlements.

b) Food insecurity.

c) Refugees.

*d) All of the above.

10. Which of the following is a "vulnerable population' discussed specifically by Carolan in his chapter on Greenhouse Gases?

a) The working class.

b) The middle class.

*c) Children, women and the elderly.

d) All of the above.

11. Which of the following is the best definition of a carbon sink?

a) A landfill that stores C02 and methane gasses underground.

b) Storage of C02 underground below the groundwater table.

c) Storage of C02 above ground in storage tanks.

*d) A natural or artificial reservoir that holds and stores greenhouse gases.

12. Climate change refugees are expected to surpass all known refugee crises in terms of the number of people affected.

*a) T

b) F

13. Climate change-related risks in urban centers are a function not only of actual events but also of the capacity to respond to and withstand environmental threats.

*a) T

b) F

14. Urban centers in developed nations have more capacity to respond to and withstand environmental threats (like those attributable to climate change) than urban centers in developing nations.

*a) T

b) F

15. There are very few household actions that can reduce Carbon emissions.

a) T

*b) F

16. The energy consumed by the U.S. building sector constitutes a small 15% of carbon emissions in this country.

a) T

*b) F

17. Few U.S. citizens today believe that global warming is human caused.

a) T

*b) F

18. Space mirrors are an example of geoengineering to adapt to climate change.

*a) T

b) F

19. The Kyoto Protocol is probably the most well-known cap and trade scheme to mitigate climate change.

*a) T

b) F

20. Humans emit more than 35 billion tons of CO_2 into the atmosphere annually.

*a) T

b) F

Type: E

21. Define Adaptation and Mitigation.

a) Student should reference Adaptation -p38 Actions to adjust to socio-ecological systems. Adjusting to respond to existing or predicated climate change effects and to reduce harmful consequences. Mitigation Actions to prevent human-induced climate change.

Type: E

22. Define Climate change refugees.

a) Student should reference that climate change will fundamentally change the lives of millions of people. People will be forced to migrate in search of safety, water, food and employment. That it will surpass all other mass migrations. The number of people affected will most likely be from the poor, less developed regions where weak governments lack the means to adapt and respond to the effects of climate change -p 31.

Type: E

23. Define Informal settlements.

a) Student should reference barrios, urban slums or tent cities. That they are unplanned groups of housing that are constructed on land illegally and are not in compliance with current building regulations. Crowded, poorly maintained, dangerous. These communities are highly vulnerable to extreme weather events and other kinds of natural and industrial disasters. The vast majority of the world's poor live in these kinds of settlements. -p23.

Type: E

24. Define Low elevation coastal zones.

a) Student should note that a growing percentage of world population is migrating and living in coastal regions and that this migration trend is occurring mostly in the developing world. Low elevation coastal zones extremely vulnerable to extreme weather events due to climate change, hurricanes, typhoons, storm surges, flooding, mudslides. Also they should note that poor housing is structurally deficient to protect inhabitants. -p 25

Type: E

25. Explain and give examples of Vulnerable populations.

a) Students should perhaps note the poor in underdeveloped regions living in informal settlements in low elevation zones. This also includes children, women and the elderly as some of the most vulnerable -p 27. Subsistence farmers, fishers, pastoralists. -ECOnnection 2.2 p 26. Women in Less Developed Countries. -Figure 2.2 p 28. Women and their responsibility for feeding families. -ECOnnection 2.3 p 29. Young men, economic migrants. Climate Change Refugees. -p 28. Competition and conflict with existing groups. Political instability, civil strife and war.

Type: E

26. Explain issues in Food security.

a) Student should acknowledge that that world's poor are food insecure to begin with and that climate change will exacerbate vulnerability. There will be increased risk of crop failure, new patterns of pests and diseases, lack of appropriate seeds and farm supplements for changing micro and macro climates. Loss of livestock and fishing stock. -p 25

Type: E

27. What is the Intergovernmental Panel on Climate Change?

a) Students should describe that the IPPC was established through the United Nations. It is the established international authority on climate change. It is the official advisory board on climate change and in its Fourth Assessment Report, the IPPC estimates that "Greater than 90% chance that average growing season temperatures by this century's end will exceed the average growing season temperature between 1900 to 2006 for most of the tropics and subtropics." -p 25

Type: E

28. What is the cost of action versus inaction in regards to climate change?

a) Students should acknowledge that many argue that the costs of action are cost prohibitive. However, a number of analyses show the opposite is true. Examples from environmental movements that matter or, at the household level, referencing Seventeen Pragmatic Behavioral Changes. Table 2.2 Achievable Carbon Emission Reductions Resulting from Household Actions (p.34).

Type: E

29. Discuss stabilization triangles and wedges.

a) Students should discuss the stabilization triangle: The amount that would need to be cut to stabilize rising CO2 levels. Wedges: Various proportional amounts of CO2 that would need to be cut to stabilize levels. Wedges can take different forms, for example: Reductions from behavioral changes; Reductions in carbon emissions from energy industry; Zero emission energy policies (solar, wind, etc.) -p 35 Figure 2.2

Type: E

30. What are examples and advantages of Green building?

a) Students should discuss Energy consumed in the U.S. building sector (commercial and residential) constitutes about half of all energy used in the country. Any serious attempt to mitigate GHG emissions must include changes in the building sector. Improve insulation, alternative energy, natural lighting. Energy efficient buildings and homes pay for themselves in energy savings. Green buildings make people happier and healthier. -p 32

Type: E

31. Define and give examples of Geoengineering.

a) Student should reference that ECOnnection 2.4: Examples of Geoengineering, Mitigation and Adaptation (p.39) . Ocean Fertilization: phytoplankton, CO2 absorption. Space Mirrors: deflection of solar energy. Carbon Tax: Tax carbon emissions. Genetically engineered food: Drought tolerant, insect resistant. - p 38-39

Type: E

32. What are Carbon offsets?

a) Student should note that it is different from Cap and Trade regulatory programs. Private Not for Profit companies (Carbonfund) involved in Carbon Offset projects. Volunteer to invest in a carbon offset: Rain Forest project . Can improve “Green Image” -p 40

Type: E

33. Define Cap and trade.

a) Student should address that it is a regulatory program that seeks to reduce GHG emissions. Limits CO2 emissions through the permitting system through allowable limits. Encourages energy efficiency, can sell/ trade carbon credits on the carbon exchange. “Cap” prevents further increases in CO2. -p 40

Type: E

34. Describe the Kyoto Protocol.

a) Student should note that it is a United Nations Treaty signed in 1997 that requires its signatories to reduce GHG emissions. The U.S. was not a signatory nation. -p 40

Type: E

35. Of the Fast Facts presented at the start of Chapter 2 (Climate Change), which fact was most compelling to you and why?

a) Answer should draw on text, lecture and discussion and must apply well two new concepts from chapter.

Type: E

36. Which Fast Fact would you use to talk to and educate others about climate change? Why and what would you say?

a) Answer should draw on text, lecture and discussion and must apply well two new concepts from chapter.

Type: E

37. Discuss and explain how climate change affects food security, women, children and the elderly and how it affects people in urban areas and low elevation zones. Provide some additional facts from the chapter in discussing the vulnerabilities of each of these population groups to climate change.

a) Answer should draw on text, lecture and discussion and must apply well two new concepts from chapter.

Type: E

38. Why do some continue to deny the existence of anthropogenic climate change?

a) Answer should draw on text, lecture and discussion and must apply well two new concepts from chapter.

Type: E

39. What are your thoughts on geoengineering: can we effectively engineer ourselves out of this mess and thus avoid making any substantial changes to the status quo?

a) Answer should draw on text, lecture and discussion and must apply well two new concepts from chapter.

Type: E

40. How is climate change a social justice issue?

a) Answer should draw on text, lecture and discussion and must apply well two new concepts from chapter.

Type: E

41. What are some of the most pronounced impacts of climate change for those in low-income countries? And for those residing in high-income countries?

a) Answer should draw on text, lecture and discussion and must apply well two new concepts from chapter.