**AICE Environmental Management/ AP Environmental Science: Semester 1 Review Sheet**

Complete as much of this review sheet as you would like for up to 30 points added to your semester exam. Responses to this sheet must be neatly hand-written or typed. **If typed, this assignment MUST be submitted to turnitin.com.** While you are encouraged to work and study together, DO NOT turn in work that you have not completed—All work on this review sheet MUST be your own. Academic dishonesty will not help you succeed on the exam, and will result in serious penalties to your exam score as well as a referral and Cambridge probation. This review is due the day and period you take **your** midterm.

**Section 1: The Biosphere**

**Abiotic factors and nutrient cycling:**  
1. What is ecology?  
2. Explain the difference between abiotic and biotic factors. Provide at least 3 examples of each.  
3. How do air currents impact global climate bands?  
4. Explain using diagrams and words the following biogeochemical cycles:  
 a. The Carbon Cycle  
 b. The Nitrogen Cycle  
 c. The Phosphorus Cycle  
5. What is global climate change and why should we be concerned with it? Describe at least 2 natural and anthropogenic causes of GCC and describe how it might impact the four spheres of Earth.

**Trophic levels and energy flow in ecosystems:**  
6. What is the difference between ecosystems and communities?  
7. What is a trophic level and what can it tell us?  
8. What is the difference between producers and the different levels of consumers?   
9. What factors influence photosynthesis?  
10. Explain and diagram the difference between a food chain and a food web.  
11. How do humans manipulate food chains?  
12. Explain with an example what biomagnification is.  
13. How and why do we use pyramids to represent energy transfers?

**Succession:**  
14. What is ecological succession?  
15. Explain the differences between primary and secondary succession.

**Biomes:**  
16. Define and explain some of the causes of climate.  
17. What is a biome and what causes biome regions?  
18. Explain (perhaps with a chart or table) the major characteristics of and differences between the following terrestrial biomes: tundra, taiga, grasslands, temperate deciduous forest, desert, monsoon rainforest, tropical rainforest.  
19. Explain (perhaps with a chart or table) the major characteristics of and differences between the following aquatic biomes: freshwater ecosystems such as lakes, wetlands, and streams, marine biomes such as estuaries, intertidal zone, neritic zone, open sea zone, and deep sea zone.

**Populations**:  
20. What is a population and how do we describe it?  
21. Describe the four most important population characteristics: size, dispersion, density, and age structure.  
22. What is a survivorship curve and how is it used?  
23. What factors might influence population growth rate?  
24. What is the difference between geometric and arithmetic growth?  
25. Describe limiting factors and how they impact carrying capacity.  
26. Using examples of each, explain the difference between density dependent and independent limiting factors.  
27. What is competition and why is it important to population density/size?  
28. Describe Gause’s Law and explain what happens as a result of this principle.  
29. What are invasive species and how are they significant?  
30. Explain the differences between mutualism, commensalism, and parasitism.   
31. Describe current human population demographics in MEDC’s vs. LEDC’s.  
32. What drives human population growth?  
33. What is the theory of demographic transition?  
34. What is the IPAT equation and what does it tell us?  
35. How does increasing human population affect the environment?

**Human impacts on the Biosphere:**  
36. What are the differences between limited and nonlimited resources? Provide examples of each.  
37. What is pollution? What are some examples?  
38. Define indicator species and provide one example.  
39. Describe one method other than pollution in which humans harm the environment.

**Section 2: The Lithosphere**

**Lithosphere Structure and Tectonics:**  
40. What are convection currents and why are they important to the Earth?  
41. Define the characteristics of the three CHEMICAL layers of the Earth: crust, mantle, core.  
42. Define the characteristics of the five PHYSICAL layers of the Earth: lithosphere, asthenosphere, mesosphere, outer core, inner core.  
43. What are plate tectonics and how do they move?  
44. Provide three pieces of evidence for the theory of plate tectonics.  
45. What are the three types of plate boundaries and what occurs typically at each of these boundaries?

**Volcanoes:**46. What causes volcanoes?—Describe in detail  
47. Describe the difference between mafic and felsic lava.  
48. Describe at least three types of volcanoes.

**Earthquakes:**  
49. What is the difference between focus and epicenter?  
50. Where do earthquakes occur and what causes them?  
51. Describe the difference between body and surface waves as well as the difference between s and p body waves.  
52. What are three scales used to measure Earthquakes and how do they differ?  
53. Describe the three types of faults.  
54. What is a tsunami and what causes it?  
55. How do volcanoes and earthquakes interact?

**Soils and Mass Movements:**  
56. What is pedogenesis and what environmental factors influence it?  
57. What are the five soil horizons and what is in each one?  
58. Describe soil texture and why it is significant.  
59. What influences soil fertility?  
60. What is the difference between erosion and degradation?  
61. What is a mass movement and why might it be dangerous?  
62. How can sustainable agriculture help prevent mass movements of soil?  
63. What can humans do to preserve soil quality?  
64. Specifically how doe humans impact soil quality in agricultural systems?  
65. What can be done to preserve agricultural soil systems?