Physical Geography 110 Name:

Assignment Spatial Patterns and Interactions

1. Weathering, erosion, and mass wasting are all processes that change Earth's landscape. Find and describe an example of each of the three processes from your local surroundings within New Brunswick. [3 points]

2. Variations in climate over the globe play a significant role in the weathering of materials. Explain briefly and provide two examples. [4 points]

3. The rate that water moves from one part of the water cycle to another varies; for example, water cycles between the atmosphere, rivers and soil much more rapidly than the recycling of water caught up in glaciers. Using your knowledge of the water cycle, what are the implications of these differences—particularly with the current global melting of glaciers in mind?

4. How does “karst” topography form? Describe a karst landscape in New Brunswick. Include at least one image of it. [3 points]

5. Search the globe for glacial landforms! Using Google Maps, switch to the "Earth" view and toggle to 3D. Hold the CTRL button and drag your mouse to adjust the 3D effect as needed. You may have to wait for a bit for the images to load to full resolution. Scan the Earth to find one alpine glacier and one continental glacier. For each glacier you find, copy the screen and paste the image into your assignment, along with a brief explanation of the process(es) that most likely created that landform.

6. Important nutrients critical to the balance of life on Earth are continuously cycled throughout the environment. These include carbon (C), oxygen (O2) and nitrogen (N2). How is each of these nutrient cycles dependent on the water (H2O) cycle?

7. Explain in some detail the meaning of the chemical equation below (notice the arrow in the middle travels in both forward and reverse directions),and how it relates to biochemical cycling in the ecosystem. [4 points] CO2 + H2O ⇄ C6H12O6 + O2

8. Why are special types of bacteria important to the way in which nitrogen cycles through the ecosystem? What exactly do they do?

9. Populations of specific plant and animal species belong to certain natural communities. These communities are classified according to the climate of the area, which affects its predominant vegetation. Each “biome” is characterized by the adaptations of its organisms to that particular environment. The Sahara desert biome requires adaptations for the life that inhabits the area.

a. Name two (2) traits that make this biome different from others.

b. Name two (2) plant adaptations that allow them to grow here.

c. Name two (2) animal adaptations that allow them to live here.

10. Name and describe the two main types of soils found in New Brunswick. Be sure to use Canadian source(s) in your research.

11. Most human activities have negative impacts on the environment in one form or another. a. Identify four human activities in New Brunswick that have had a detrimental effect on the natural environment. Write a line or two for each.

b. Focus on one of the human activities identified in part a that damage the environment and provide two suggestions for improving the situation. Make your suggestions realistic and doable!

12. Review the image illustrating the three realms of sustainable development. What does sustainable development mean to you? Be sure to refer to all three realms in your response.

