

Chapter 7 Review Questions + Problem Set- Climate and Biodiversity

Directions- On your own loose-leaf paper, answer the following questions in well-written complete sentences. You do not need to write the question. Be sure to number each answer so the number corresponds to the question.

Chapter 7 Review Questions

1. Describe how differences in climate lead to formation of tropical, temperate, and polar deserts, grasslands, and forests.
2. Distinguish between weather and climate.
3. Describe three major factors that determine how air circulates in the lower atmosphere.
4. Describe how the properties of air, water, and land affect global air circulation.
5. Define ocean currents and explain how they, along with global air circulation, support the formation of forests, grasslands, and deserts.
6. What is the rain shadow effect and how can it lead to the formation of deserts?
7. Why do cities tend to have more haze and smog, higher temperatures, and lower wind speeds than the surrounding countryside?
8. What is a biome?
9. Explain why there are three major types of each of the major biomes (deserts, grasslands, and forests).
10. Describe how climate and vegetation vary with latitude and elevation.
11. Describe how the three major types of deserts differ in their climate and vegetation. How do desert plants and animals survive (adaptations)?
12. Describe how the three major types of grasslands differ in their climate and vegetation.
13. What is a savanna?
14. Why have many of the world's temperate grasslands disappeared?
15. What is permafrost?
16. Distinguish between arctic tundra and alpine tundra.
17. What are the three major types of forests?
18. Describe how these three types of forests differ in their climate and vegetation.
19. Why is biodiversity so high in tropical rain forests?
20. Why do most soils in tropical rain forests hold few plant nutrients?
21. Describe what happens in temperate deciduous forests in the winter and fall.
22. What are coastal coniferous or temperate rain forests?
23. What important ecological roles do mountains play?
24. Describe how human activities have affected the world's deserts, grasslands, forests, and mountains.

Chapter 7 Problem Set

Use the climate graphs in chapter 7 and the food webs in Supplement 6; page S20-S25, in the textbook to answer the following questions.

25. During which month does the temperate desert receive the most precipitation and how much (mm)?
26. During which month does the temperate desert receive the least precipitation and how much (mm)?
27. What is the warmest month in the temperate desert and what is the temperature ($^{\circ}\text{C}$)?
28. What is the coldest month in the temperate desert and what is the temperature, in ($^{\circ}\text{C}$)?
29. Draw a food web for the temperate desert. Include all trophic levels, use arrows showing the flow of energy and be as detailed as possible. You do not need to draw the plants and animals, just write the names.
30. During which month does the temperate grassland receive the most precipitation and how much (mm)?
31. During which month does the temperate grassland receive the least precipitation and how much (mm)?
32. What is the warmest month in the temperate grassland and what is the temperature ($^{\circ}\text{C}$)?
33. What is the coldest month in the temperate grassland and what is the temperature, in ($^{\circ}\text{C}$)?
34. Draw a food web for the temperate grassland. Include all trophic levels, use arrows showing the flow of energy and be as detailed as possible. You do not need to draw the plants and animals, just write the names.
35. During which month does the cold grassland (arctic tundra) receive the most precipitation & how much (mm)?
36. During which month does the cold grassland (arctic tundra) receive the least precipitation & how much (mm)?
37. What is the warmest month in the cold grassland (arctic tundra) and what is the temperature ($^{\circ}\text{C}$)?
38. What is the coldest month in the cold grassland (arctic tundra) and what is the temperature ($^{\circ}\text{C}$)?
39. Draw a food web for cold grassland (arctic tundra). Include all trophic levels, use arrows showing the flow of energy and be as detailed as possible. You do not need to draw the plants and animals, just write the names.
40. During which month does the tropical rainforest receive the most precipitation and how much (mm)?
41. During which month does the tropical rainforest receive the least precipitation and how much (mm)?
42. What is the warmest month in the tropical rainforest and what is the temperature ($^{\circ}\text{C}$)?
43. What is the coldest month in the tropical rainforest and what is the temperature ($^{\circ}\text{C}$)?
44. Draw a food web for the tropical rainforest. Include all trophic levels, use arrows showing the flow of energy and be as detailed as possible. You do not need to draw the plants and animals, just write the names.
45. During which month does the temperate deciduous forest receive the most precipitation and how much (mm)?
46. During which month does the temperate deciduous forest receive the least precipitation and how much (mm)?
47. What is the warmest month in the temperate deciduous forest and what is the temperature ($^{\circ}\text{C}$)?
48. What is the coldest month in the temperate deciduous forest and what is the temperature ($^{\circ}\text{C}$)?
49. Draw a food web for the temperate deciduous forest. Include all trophic levels, use arrows showing the flow of energy and be as detailed as possible. You do not need to draw the plants and animals, just write the names.
50. During which month does the coniferous forest receive the most precipitation and how much (mm)?
51. During which month does the temperate deciduous forest receive the least precipitation and how much (mm)?
52. What is the warmest month in the coniferous forest and what is the temperature ($^{\circ}\text{C}$)?
53. What is the coldest month in the coniferous forest and what is the temperature ($^{\circ}\text{C}$)?
54. Draw a food web for the coniferous forest. Include all trophic levels, use arrows showing the flow of energy and be as detailed as possible. You do not need to draw the plants and animals, just write the names.