Biology Study Guide - answers

**Chapter 1.1: Check your understanding**

1. Temperature, sunlight, soil, moisture, pH, etc.
2. By growing quickly during the long, sunlit days; by flowering early
3. Ocean winds drop large amounts of moisture on the windward side of the mountains (orographic effect)
4. Temperate (cold) Desert - high temperatures (but not extremely hot); very dry (little precipitation)

Tundra – cold temperatures (below freezing most of the year); low precipitation

1. i) B ii) G iii) D iv) A v) E vi) F vii) C viii) H
2. They are found in similar latitudes so they have adapted to similar climates (both Temperate Deciduous Forest biomes)
3. Very few producers; extreme cold
4. A) grassland 🡪 tropical rainforest 🡪 temperate deciduous forest 🡪 boreal forest 🡪 tundra

B)

|  |  |  |
| --- | --- | --- |
| **Biome** | **Plant** | **Animal** |
| Grassland | Grasses | Antelope, wolves |
| Tropical rainforest | Vines, orchids | Parrots, sloths |
| Temperate deciduous forest | Maple, oak | Squirrels, deer |
| Boreal Forest | Fir, pine | Moose, hare |
| Tundra | Lichen, moss | Caribou, arctic fox |

**Chapter 1.2: Check your understanding**

1. Single species 🡪 population 🡪 community 🡪 ecosystem 🡪 biome 🡪 biosphere

2. Soil provides nutrients, habitat for many species of small organisms, anchors plant

3. a) mutualism b) commensalism c) parasitism d) competition e) mutualism

4 a) predators will decrease

 b) predators will increase

**Chapter 2.1: Check your understanding**

1. Breaking down organic waste and dead organisms into usable nutrients.
2. Plants produce their own food through photosynthesis.
3. Grass 🡪 Mouse 🡪 Snake 🡪 Eagle
4. Yes; they eat producers.
5. 99% ; T1 🡪 T2 (90% of 100 = 90%); T2 🡪 T3 (90% of 10 = 9%) Total lost = 90% + 9% = 99%
6. No, energy is lost as heat to the environment. Detrivores recycle **matter** by making nutrients available in the soil to producers, not **energy.**

(Note: you could argue yes if you said detrivores are an energy source for some organisms; e.g. robins eat earthworms)

1. a) A b) A c) B d) C or D e) B
2. a) 100 000 b) 10 000 c) 1000
3. Energy is lost at each trophic level (90%). There is not an unlimited amount of producers to support the trophic levels.
4. a) Several answers apply. Sample answer:

phytoplankton 🡪 krill 🡪 fish 🡪 penguin 🡪 orca

b) The other species might decrease because if krill is overhunted, it will diminish one of their food sources.

c) A decline in the baleen whales would increase the amount of krill, therefore more food is available for the fish, which in turn would provide more food for seals and penguins.