

- 1] Fungi are examples of: a) autotrophs b) heterotrophs c) detritivores
d) keystone species **e) b & c**
- 2] The number of formally recognized (i.e. named) species on the earth today is approximately: **a) 2 million** b) 5 million c) 8.7 million d) 100 million
e) 200 million
- 3] When two closely related species have adjacent but non-overlapping distributions, this is likely due to: a) metabolic differences b) habitat preference
c) competition d) a patchy distribution of food resources e) a & d
- 4] The concept of the community as a discrete and highly integrated unit was developed initially by a) Whittaker b) Wallace c) Linnaeus **d) Clements**
e) Darwin
- 5] Biogeography is primarily an:
a) integrative science b) experimental science c) observational science
d) "earth science" **e) a & c**
- 6] The similarity of environmental conditions between sites decreases as we compare more distant sites. This phenomenon is known as:
a) spatial autocorrelation b) geographic variation c) a stochastic process
d) aerography e) a & d
- 7] The warm, dry, climates that occur on the leeward sides of temperate mountains are a consequence of: a) the tropical convergence zone **b) rain shadow effect**
c) El Nino events d) the Coriolis effect e) a & c
- 8] Plant species that grow in full sunlight on dry soils are still able to keep their stomates open despite low levels of water in their leaves. Such plants are called:
a) xerophytes b) mesophytes c) nurse trees d) keystone species e) b & d
- 9] Some organisms, use a form of chemical warfare to defend space from competitors. This is referred to as: a) diffuse competition
b) exploitative competition c) interference competition d) allelopathy **e) c & d**
- 10] There is a regular pattern of colonization and replacement of species following a logging operation. Ecologists call this process: a) primary succession
b) secondary succession c) distance decay d) canalization e) a & d
- 11] He is considered the "father of zoogeography": a) Alexander von Humboldt
b) George Lyell c) Charles Darwin d) Ernst Mayr **e) Alfred Russel Wallace**

- 12] Most of Hawaii's endemic lowland birds have been extirpated. This is mainly due to: a) competition with more recently arrived birds b) climate change c) habitat loss d) internal parasites e) c & d
- 13] The earth's tides are produced, in part, by: a) Coriolis forces b) the energy of the earth's core c) solar energy d) the gravitational pull of the moon e) c & d
- 14] The niche of a species can be visualized as the combination of different environmental variables that allow individuals to survive and reproduce, and populations to maintain their numbers. This describes a: a) Grinnelian niche b) Eltonian Niche c) Hutchinsonian niche d) MacArthurian niche e) Darwinian niche
- 15] Highly selective predators, that rely on a single prey species often have distributions identical to that of the prey species. Such predators are called: a) stenophagous b) euryphagous c) mesophagous d) secondary consumers e) batesian mimics
- 16] If geographic distributions are not limited directly, or indirectly by physical factors; then they are limited by other species .
- 17] "An assemblage of species living together in the same place" defines a community .
- 18] Two characteristics of species that strongly influence their effects on community organization are size and trophic position .
- 19] Both Darwin and Wallace independently and simultaneously developed what is recognized today as "the theory of evolution".
- 20] The assumption that the basic physical and biological processes operating today, have been operating throughout time is referred to as uniformitarianism .
- 21] In the terrestrial biomes that we have discussed, seasonality, with respect to precipitation, is driven by the intertropical convergence zone .
- 22-23] Most biogeographers recognize six major forms of terrestrial vegetation; name four of these: forest , woodland , shrubland , grassland , scrub , desert .
- 24] Realized niche is a subset of the fundamental niche. Give two reasons why an organism might be constrained to only a portion of its putative niche space. competition , chance .
- 25] An interaction between two species in which one benefits and the other suffers is called predation .

- 26] The real spatial abundance patterns of nearly all species are aggregated .
- 27] The fundamental unit of biogeography is the geographic range .
- 28] The first principle of biogeography (“environmentally similar but isolated regions have distinct assemblages of mammals and birds”) is known today as Buffon’s Law .
- 29] The density and pressure of air decrease with increasing elevation. Consequently, the expanding gases also lose heat energy. This is called adiabatic cooling .
- 30-32] The three main abiotic factors controlling the distribution of species are: temperature , precipitation , soils .
The three main biotic interactions affecting the distributions of species are: competition , predation , mutualisms .
- 33 - 34] A particular “food web” or “food chain” contains four trophic levels, describe each trophic level:
primary producer , herbivores ,
primary carnivore , secondary carnivore (or detritivore) .
- 35] Give an example of a obligate mutualistic association:
acacia trees and ants .
- 36] In general, those regions of the earth with a higher fixation rate of sunlight into organic material, tend to be among the most productive and diverse.
True / False
- 37] The tropical rainforest biome occupies only 6% of the earth’s land surface, yet it harbors ~ 50% of the earth’s species. **True** / False
- 38] On a daily basis, a mouse uses more energy than does an elephant.
True / **False**
- 39] Larger organisms have greater capacities to withstand prolonged stress, than do smaller organisms. **True** / False
- 40] Robert Whittaker (and colleagues) studied the distribution of tree species across moisture gradients on mountain sides in the U.S. Their research identified patterns consistent with the hypothesis that species distributions were determined by competitive exclusion. True / **False**
- 41] Connell’s classic study on the distribution of the barnacle *Chthamalus stellatus* indicated that it was limited by both biotic and abiotic factors. **True** / False

- 42] The annual “overturn” in temperate lakes carries inorganic nutrients downward while returning much needed oxygen to the surface. True / False
- 43] The surface winds, influenced by the Coriolis effect, initiate the major ocean currents. True / False
- 44] Every location on earth theoretically experiences the same amount of daylight and darkness over an annual cycle. True / False
- 45] Seasonality increases with increasing latitude and this is due to “the angle of incident” radiation. True / False
- 46] Periodic El Nino events lead to heavy rains in the typically “rainless” Atacama Desert on the coast of Peru, and an increased coastal upwelling of the nearby Humboldt current. True / False
- 47] The distribution of soil types is correlated with the distribution of climate zones. True / False
- 48] Global patterns of temperature, winds, and ocean currents determine the global distribution of rainfall. True / False
- 49] A population increases when the combined rates of birth and immigration exceed the combined rates of death and emigration. True / False
- 50] Nearly all of the great deserts of the world occur in the region defined by the convergence of Hadley cells. True / False