

Environmental science
Study guide, final semester 2

1. Which of the following biomes contains the largest number of biodiversity hotspots
 - (a) Tundra
 - (b) Tropical forest
 - (c) Taiga
 - (d) Temperate deciduous forest
 - (e) Dune desert
2. Which of the following IUCN ratings has the highest probability of going extinct in the next decade?
 - (a) Least concern
 - (b) Near threatened
 - (c) Critically endangered
 - (d) Endangered
 - (e) Vulnerable
3. The waste tailings from a mine damaging fish populations by poisoning is an example of which of the following threats to biodiversity?
 - (a) Invasive species
 - (b) Pollution
 - (c) Overharvest
 - (d) Population density effects
 - (e) Predation
4. How do invasive species negatively impact native species?
 - (a) Predation
 - (b) Displacement
 - (c) Competition
 - (d) Disease
 - (e) All of the above
5. Fisheries which take fish above the maximum sustainable yield may drive the decline of the fish stock through
 - (a) Habitat destruction
 - (b) Invasive species
 - (c) Pollution
 - (d) Overharvest
 - (e) Combined effects
6. Plastics in marine ecosystems are an example of what kind of threat to biodiversity?
 - (a) Habitat destruction
 - (b) Invasive species
 - (c) Pollution
 - (d) Overharvest
 - (e) Combined effects

7. According to the theory of island biogeography, what is the effect of fragmented habitat?

- (a) A reduced biodiversity compared to unfragmented habitat of the same area
- (b) An increased biodiversity compared to an unfragmented habitat of the same area
- (c) There should be no difference between fragmented and unfragmented habitats
- (d) If the habitat is a biodiversity hotspot, the biodiversity in fragmented habitat will go up
- (e) If the habitat is a biodiversity hotspot, the biodiversity in fragmented habitat will go down

8. Which of the following is most accurate?

- (a) Extinctions have been happening as long as there has been life, and humans sometimes cause an extinction, but about the same number that happen naturally.
- (b) Extinctions never happen unless humans are involved, with most extinctions which have ever happened occurring in the past 200 years.
- (c) Extinctions have happened in the past and humans have increased the rate of extinction in the past 200 years.
- (d) Extinctions have happened in the past and humans have decreased the rate of extinction in the past 200 years.
- (e) Organisms rarely go extinct naturally and humans have not changed this.

9. Which of the following methods might be used to limit sprawl into rural areas around a city?

- (a) Classification of species near the city as endangered
- (b) Urban growth boundaries and zoning restrictions
- (c) Designation of neighborhoods as historic
- (d) Creation of a regional transportation plan
- (e) Building roads to suburbs

10. The greatest general problem with suburbs is _____.

- (a) that they spread environmental impact over a larger area
- (b) high population density
- (c) decreased water quality
- (d) lack of nearby shopping
- (e) lack of resources

11. Pat and Terry are considering moving from near the center of a large city into the suburbs. Which of the following discussion points is valid?

- (a) If they stay in the city, they will contribute more to local pollution.
- (b) If they stay in the city, they'll probably get less exercise.
- (c) They'll experience more stress if they move to the suburbs.
- (d) It will be easier to have a place for a vegetable garden if they move to the suburbs.
- (e) If they move to the suburbs, it will cost much less for transportation.

12. The world's urban populations are _____.

- (a) shrinking in developed nations
- (b) growing faster than the population as a whole
- (c) growing at about the same rate as the rural populations
- (d) growing most rapidly in the developed nations
- (e) shrinking, compared to rural populations

13. Hotspot conservation approaches conservation at the _____ level.

- (a) Genetic
- (b) Species
- (c) Population/community
- (d) Ecosystem
- (e) Global

14. How might an “endangered” designation under the Endangered Species Act help conserve a species?

- (a) Limit activities which cause the species harm
- (b) Set aside new parks or marine protected areas
- (c) Increase growth in urban areas
- (d) Increase funding to the Environmental Protection Agency
- (e) All of the above

15. Which of the following terms defines the disappearance of a particular population from a given area (but not the entire species globally)?

- (a) Evolution
- (b) Extinction
- (c) Emigration
- (d) Adaptation
- (e) Extirpation

16. Globally, what is the trend in the size of cities?

- (a) Most are increasing in physical size and population
- (b) Most are decreasing in both physical size and population
- (c) Most are increasing in physical size and decreasing in population
- (d) Most are decreasing in physical size and increasing in population
- (e) Most cities are roughly constant in size

17. How has the global population changed in the past 200 years?

- (a) Increased dramatically (more than doubled)
- (b) Slightly increased (grew but less than doubled)
- (c) Remained constant
- (d) Slightly decreased (declined but by less than half)
- (e) Decreased dramatically (declined by more than half)

18. An urban growth boundary (UGB) is intended to _____.

- (a) maintain low housing costs for the average homeowner
- (b) help an area retain its distinctive character
- (c) enforce certain restrictions within neighborhoods
- (d) ensure that businesses do not locate in residential areas
- (e) provide guidelines for future city development

19. What does the theory of island biogeography predict about a small island, distant from the mainland?

- I It will have fewer mainland species on it compared to islands closer to the mainland
- II It will have fewer mainland species on it compared to islands which are larger
- III It will have fewer mainland species on it compared to the mainland

- (a) I only
- (b) II only
- (c) III only
- (d) I and II but not III
- (e) I, II, and III

20. New urbanism is the name given to which of the following urban planning goals.

- (a) High density, walkable cities
- (b) Lowering the density of the urban core
- (c) Increasing the suburban home ownership rate
- (d) Finding new sources of renewable energy
- (e) All of the above

21. Any consideration of the true costs of sprawl must include _____.
- (a) crumbling inner cities with deteriorating facilities, and the increased use of fossil fuels
 - (b) more time for families to be together
 - (c) the problems of decreased water and energy consumption
 - (d) the restoration of natural areas to inner cities
 - (e) the increasing use of pesticides
22. Which of the following is a method that governments use to improve urban transportation?
- (a) Provide motorcycle lanes in the center of rail lines.
 - (b) Provide bicycle lanes on freeways.
 - (c) Designate carpool lanes and carpool parking spots in many public places.
 - (d) Give tax rebates to people who use only public transportation.
 - (e) Make some public buildings and some communities accessible only by public transportation.
23. Pat and Terry are considering moving from near the center of a large city into the suburbs. Which of the following discussion points is valid?
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 - (b) If they stay in the city, they'll probably get less exercise.
 - (c) They'll experience more stress if they move to the suburbs.
 - (d) It will be easier to have a place for a vegetable garden if they move to the suburbs.
 - (e) If they move to the suburbs, it will cost much less for transportation.
24. The world's urban populations are _____.
- (a) shrinking in developed nations
 - (b) growing faster than the population as a whole
 - (c) growing at about the same rate as the rural populations
 - (d) growing most rapidly in the developed nations
 - (e) shrinking, compared to rural populations
25. In developing nations such as India and Nigeria, _____.
- (a) very little change has occurred in the past 40 years regarding where people live
 - (b) rural people are moving to the cities in large numbers
 - (c) more people are moving to the suburbs than to the city centers
 - (d) most of the population is moving to the suburbs from the city centers
 - (e) small numbers of people have moved into the cities
26. Which of the following is most likely to be a source of an invasive species?
- (a) Agricultural planting of species found in the vicinity of the farm
 - (b) A greenhouse containing species from a very different ecosystem
 - (c) Decorative planting of species from a far away, similar ecosystem
 - (d) Plant matter, cut and dried, for industrial use, from a distant location
 - (e) All of the above
27. Which of the following is the most likely to go extinct under the IUCN standards?
- (a) Vulnerable
 - (b) Near threatened
 - (c) Least concern
 - (d) Critically endangered
 - (e) Data deficient

28. Hotspot conservation approaches conservation at the _____ level.
- (a) Genetic
 - (b) Species
 - (c) Population/community
 - (d) Ecosystem
 - (e) Global
29. Forest clearing for agricultural usage is an example of what kind of threat to biodiversity?
- (a) Habitat destruction
 - (b) Overharvest
 - (c) Pollution
 - (d) Invasive species
 - (e) All of the above
30. How do invasive species negatively impact native species?
- (a) Predation
 - (b) Displacement
 - (c) Competition
 - (d) Disease
 - (e) All of the above
31. You want to maintain a healthy pond at your school site. Last year, another pond became eutrophic; to avoid that, you want to _____.
- (a) increase the carbon-based fertilizers in the littoral zone
 - (b) decrease the calcium available in the profundal zone
 - (c) increase the ozone in the littoral zone
 - (d) provide nitrogen for good nutrient mixing in the benthic zone
 - (e) avoid increasing nitrogen and phosphorus in the limnetic zone
32. Which of the following has contributed to aquifer contamination?
- (a) Hazardous waste disposal, by pumping waste underground
 - (b) Leaching of excess water into aquifers
 - (c) Natural gases, such as carbon monoxide, dissolving into aquifers
 - (d) Inappropriate use of household detergents
 - (e) Fungi entering through wells
33. A septic system is _____.
- (a) a toxic or badly polluted waterway
 - (b) a second level mechanism to remove bacteria at a wastewater treatment plant
 - (c) the use of natural wetlands to cleanse wastewater
 - (d) a rural method of handling sewage
 - (e) an early version of a wastewater treatment plant
34. In a municipal water treatment plant, the primary treatment step consists of _____.
- (a) stirring the sewage to increase oxidation
 - (b) leaving the sewage to sit in large tanks so suspended solids settle out
 - (c) chlorinating the sewage
 - (d) adding bacteria to the sewage
 - (e) filtering the sewage

35. Photochemical smog differs from industrial smog in that it _____.
- (a) is primarily composed of carbon monoxide
 - (b) is formed in the presence of sunlight
 - (c) is an unhealthy mixture of pollutants
 - (d) consists of primary pollutants
 - (e) has large quantities of soot
36. Ultimately, all fossil fuels are _____, because they are the result of _____.
- (a) geological; sedimentation
 - (b) ultimately from the sun; photosynthesis
 - (c) inefficient; decomposition by microorganisms
 - (d) synthetic; chemical manipulation of hydrocarbons
 - (e) polymers; biological metabolic processes
37. Natural sources of air pollution come from _____.
- (a) Internal combustion engines
 - (b) coal-fired electrical plants
 - (c) soil dust and volcanic dust
 - (d) evaporation of solvents
 - (e) birds
38. Atomic energy in power plants is created via _____.
- (a) fissioning uranium atoms by bombarding them with neutrons
 - (b) ionic transformation of atoms
 - (c) fusion of electrons
 - (d) bombarding radioactive elements with electrons
 - (e) extraction of energy from the nucleus of cells
39. Biofuels and nuclear power may prove useful as _____.
- (a) stages in the development of fusion generators
 - (b) alternative energy sources for fossil fuels that may be used in the short term until more efficient alternatives are developed and readily available
 - (c) inexpensive technologies for developing nations
 - (d) pollution-free sustainable energies
 - (e) replacement fuels for motor vehicles
40. Which of the following laws is focused on cleanup of heavily contaminated sites?
- (a) National Environmental Policy Act
 - (b) Occupational Safety and Health Administration code
 - (c) Comprehensive Environmental Response, Compensation, and Liability Act/Superfund
 - (d) Federal Emergency Management Agency
 - (e) Endangered Species Act

41. Which of the following forms of grid power generation releases carbon dioxide as well as lead, sulfur, nitrogen oxides, and arsenic?

- (a) Hydroelectric
- (b) Solar, Photovoltaic
- (c) Coal
- (d) Nuclear
- (e) Natural gas

42. Flyash is produced by which form of power generation?

- (a) Hydroelectric
- (b) Solar, Photovoltaic
- (c) Coal
- (d) Nuclear
- (e) Natural gas

43. The cleanup of Love Canal, New York after decades of chemical exposure was funded under what law?(a) National Environmental Policy Act

- (b) Occupational Safety and Health Administration code
- (c) Comprehensive Environmental Response, Compensation, and Liability Act/Superfund
- (d) Federal Emergency Management Agency
- (e) Endangered Species Act

44. How are infrared radiation and ultraviolet radiation related?

- (a) Infrared radiation has more energy
- (b) Infrared radiation is more strongly emitted by the sun
- (c) Infrared radiation has less energy
- (d) Infrared radiation is not found in nature
- (e) Ultraviolet radiation is not found in nature

45. Which of the following is true of Earth's climate?

- (a) It will stabilize over the next century, according to the predictions of most scientists.
- (b) Its history is undeterminable because there is no method of studying climatic history of the planet.
- (c) It is changing as a result of natural and human processes.
- (d) It has changed only once due to the evolution of green photosynthesizing plants.
- (e) It has been stable over the history of the planet

46. Which of the following is true of the Montreal Protocol?

- (a) It resulted in a significant reduction in the production of CFCs by signatory nations.
- (b) It developed the international treaty for eliminating radon emissions from nuclear power plants.
- (c) It developed the framework for reduction of carbon dioxide in the United States and Canada.
- (d) It is an example of a failed attempt to reduce international air pollution.
- (e) It addressed transnational movement of acid-forming pollutants.

47. Which of the following is warming the most because of the greenhouse effect?

- (a) The mesosphere
- (b) The troposphere
- (c) The stratosphere
- (d) The ionosphere
- (e) The thermosphere

48. What was demonstrated by Keeling's curve, from data collected at Mauna Loa Observatory in Hawaii?

- (a) That sediments deposited on the seafloor can yield clues about past climates
- (b) That CO₂ levels have been stable over the last 40 years
- (c) The presence of El Niño
- (d) An increase in tropospheric CO₂ from the 1950s to present
- (e) That as distances from cities decreased, CO₂ concentrations increased

49. Which of the following statements are true about global warming?

- I. Carbon dioxide levels they have been in the 4.55 billion year history of the planet
- II. Global temperatures are the highest they have been in the 4.55 billion year history of the planet
- III. The Earth is warming equally everywhere

- (a) I only
- (b) II only
- (c) III only
- (d) I and II but not III
- (e) All three of these are false