

Environmental Science – EXAM 2 Review Questions

Spring Semester 2012

1. Which of the following is an example of an abiotic factor?
 - A. the number of individuals of a particular species living in a community
 - B. the interactions between different species in a community
 - C. the diversity of prey and predator species in a community
 - D. the climate of the community in which the species mentioned above inhabit
2. Natural selection is the process that determines
 - A. who an individual mates with.
 - B. which scientist publishes their experiments.
 - C. which individuals within a species will reproduce and pass their genes to the next generation.
 - D. how active an animal is at night.
3. The development of herbicide resistance in populations of weeds over several generations is an example of
 - A. social Darwinism.
 - B. biogeochemical cycles.
 - C. organic farming.
 - D. evolution.
4. Charles Darwin is generally credited with
 - A. developing the concept of sexual dimorphism.
 - B. developing the concept of natural selection.
 - C. developing the concept of genetic concept.
 - D. All of these are correct.
5. Among plants, a condition that results in the number of sets of chromosomes in cells to increase, is called
 - A. multi-genetics.
 - B. polyploidy.
 - C. diploid.
 - D. haploid.
6. Extinction of organisms is
 - A. very unusual.
 - B. uncommon.
 - C. not occurring today.
 - D. a common event.
7. Ecologists distinguish two different kinds of competition. One is
 - A. intraspecific.
 - B. interspecific.
 - C. ultraspecific.
 - D. Both intraspecific and interspecific are correct.

8. This concept states that no two species can occupy the same ecological niche in the same place and the same time.

- A. Natural Selection
- B. Genetic Drift
- C. Competitive Exclusion Principle
- D. Niche Exclusion

9. Two organisms that interbreed and produce fertile offspring are said to be individuals of the same

- A. community.
- B. niche.
- C. habitat.
- D. species.

10. When a population becomes isolated from another over a long period of time

- A. gene exchange is likely to occur.
- B. speciation will not occur.
- C. speciation is likely to occur.
- D. extinction is likely to occur.

11. Ecologists have traditionally categorized the roles of organisms in ecosystems into three broad categories that include

- A. producers.
- B. consumers.
- C. decomposers.
- D. All of these are correct.

12. The use of fertilizers in agriculture has significantly altered several nutrient cycles including

- A. nitrogen.
- B. phosphorus.
- C. potassium.
- D. All of these are correct.

13. The chief limiting factor to the success of most trout species is

- A. the ability to reproduce.
- B. the dissolved oxygen content in water.
- C. the amount of plant biomass.
- D. All of these are correct.

14. What is the term used to describe food chains which overlap and intersect?

- A. food web
- B. detrital food chain
- C. natural selection
- D. range of tolerance

15. The small amount of dissolved oxygen found in warm water is considered a _____ to the success of many fish species.

- A. biotic factor
- B. limiting factor
- C. niche
- D. None of these are correct.

16. Grazing animals and the grasses they eat have both evolved in response to each other's influence. This process is known as

- A. coevolution.
- B. extinction.
- C. competitive exclusion principle.
- D. interspecific competition.

17. Which of the following organisms is a primary producer?

- A. fungi
- B. grasshoppers
- C. grass
- D. bacteria

18. Which of the following organisms is a secondary consumer?

- A. wolf
- B. elk
- C. mouse
- D. bacteria

19. Which of the following is NOT a decomposer?

- A. fungi
- B. bacteria
- C. moss
- D. None of these are correct.

20. In a mutualistic relationship

- A. one organism benefits while the other is unaffected.
- B. both species benefit.
- C. one species benefits while the other is harmed.
- D. endoparasites outnumber ectoparasites.

21. Each step in the flow of energy through an ecosystem is known as a

- A. food chain.
- B. trophic level.
- C. plateau of consumption.
- D. food web.

22. The relationship between frogs and insects is an example of

- A. intraspecific competition.
- B. coevolution.
- C. a predator-prey relationship.

D. competitive exclusion.

23. Biting insects that transmit parasites are known as

- A. vectors.
- B. endoparasites.
- C. keystone species.
- D. None of these are correct.

24. Tapeworms living inside the intestines of their host are an example of what type of relationship?

- A. symbiosis
- B. commensalisms
- C. ectoparasitism
- D. endoparasitism

25. Which of the following elements is a limiting factor to plants in naturally occurring soil?

- A. nitrogen
- B. phosphorous
- C. oxygen
- D. carbon

26. What kind of plant has nitrogen-fixing bacteria living in their roots?

- A. deciduous trees
- B. mosses
- C. legumes
- D. ferns

27. Phosphorous is released from rocks by which process?

- A. bacterial decomposition
- B. weathering and erosion
- C. photosynthesis
- D. All of these are correct.

28. Carbon enters the carbon cycle in the form of

- A. lipids formed in photosynthesis.
- B. carbonate in rock.
- C. atmospheric carbon dioxide.
- D. decomposition of organic material.

29. Which of the following is an example of a keystone species?

- A. bison
- B. sea kelp
- C. wolves
- D. None of these are correct.

30. Which of the following is an example of a detrital food chain?

- A. a coniferous forest
- B. sewage treatment plan
- C. open lake

D. salt marsh

31. Polyploidy is an evolutionary mechanism that may result in

- A. new plant species.
- B. a surge in birth rates in mammals.
- C. the baldness trait becoming dominant in men.
- D. death if recessive.

32. Another name for nutrient cycles in ecosystems is

- A. biogeochemical cycle.
- B. menstrual cycle.
- C. hydrogen cycle.
- D. diurnal cycle.

33. This meat eater often gets meat from animals that have died by accident or illness, or were killed by other animals.

- A. scavenger
- B. omnivore
- C. carnivore
- D. parasite

34. The introduction of which organism is correlated with a major disruption to the food web of the Great Lakes?

- A. diatoms
- B. whitefish
- C. zebra mussels
- D. Diporeia.

35. Which biome is characterized by organisms which are inactive during the day and burrow underground?

- A. tundra
- B. taiga
- C. rainforest
- D. desert

36. Which biome is characterized by tree frogs, large vines, and fruit-eating birds and bats?

- A. grassland
- B. savanna
- C. tropical rainforest
- D. tundra

37. Which biome is characterized by having no reptiles or amphibians and an abundance of migratory waterfowl?

- A. desert
- B. tundra
- C. taiga
- D. grassland

38. The two major factors influencing vegetation in biomes are

- A. precipitation and temperature.
- B. soil fertility and hydrology.
- C. day length and climate.
- D. topography and soil type.

39. Savannas are found in

- A. Europe.
- B. tropical parts of Africa.
- C. Canada.
- D. None of these are correct.

40. Mediterranean Shrublands (Chaparral) have been heavily impacted by humans because

- A. they are near the oceans.
- B. have a moderate climate.
- C. both they are near the oceans and have a moderate climate
- D. None of these are correct.

41. In a rainforest, most of the sunlight is captured by trees and therefore only

- A. small plants grow there.
- B. fast growing trees and shrubs grow there.
- C. vines can grow underneath them.
- D. shade-tolerant plants live beneath the canopy.

42. Human impact on temperate forests include

- A. farming.
- B. logging.
- C. population centers.
- D. All of these are correct.

43. Oceans cover approximately

- A. 40% of the Earth's surface.
- B. 50% of the Earth's surface.
- C. 60% of the Earth's surface.
- D. 70% of the Earth's surface.

44. Which group of organisms forms the base of the energy pyramid in a pelagic marine ecosystem?

- A. plankton
- B. zooplankton
- C. bacteria
- D. sea grass

45. In desert biomes, flowering usually coincides with

- A. moisture availability.
- B. Santa Anna winds.
- C. cool summers.
- D. migration of monarch butterflies.

46. Which of the following is NOT a threat to tropical rainforests?

- A. logging
- B. ranching
- C. agriculture
- D. All are threats.

47. In addition to northern latitudes, patches of tundra-like plant communities are also found

- A. in cold deserts.
- B. in marshes.
- C. in bogs.
- D. on mountain tops.

48. Which of the following is NOT a characteristic of temperate deciduous forests?

- A. They have fewer species than a tropical rainforest.
- B. They contain shade-tolerant spring wildflowers.
- C. They produce useful plant products such as cashew nuts, vanilla, and rubber.
- D. All of the choices are characteristics.

49. Which of the following is NOT true of climax communities?

- A. They have fewer types of interactions among organisms.
- B. They have more kinds of organisms.
- C. They are in energy balance.
- D. They are able to maintain their mix of species.

50. Which is an example of secondary succession?

- A. bare rock
- B. a burned field
- C. standing water
- D. pure sand

51. Primary succession is

- A. a progression that begins with a total lack of organisms.
- B. of very short duration.
- C. a progression that begins with destruction of an existing ecosystem.
- D. All of these are correct.

52. Development and impact on desert areas is mainly due to

- A. air conditioning.
- B. roads and highways.
- C. modern irrigation.
- D. None of these are correct.

53. What is the dominant organism colonizing bare rock during primary succession?

- A. bacteria
- B. algae
- C. lichens
- D. submergent plants

54. Each stage in the process of succession is called a
- A. seral stage.
 - B. primary stage.
 - C. reef-forming stage.
 - D. None of these are correct.
55. Ecologists have learned that succession is influenced by many factors other than climate alone including
- A. rainfall and temperature patterns.
 - B. invasive species, disease, human land use history, and seed dispersal.
 - C. biogeochemical cycles, available oxygen, and superfund sites.
 - D. slope, wind patterns, and toxicity levels.
56. A floating bog is an example of
- A. secondary succession.
 - B. aquatic primary succession.
 - C. terrestrial primary succession.
 - D. None of these are correct.
57. Savannas differ from grasslands by having
- A. less annual precipitation.
 - B. lower average annual temperature.
 - C. no grazers.
 - D. flat-topped trees scattered throughout.
58. Which of the following is NOT a region in a lake ecosystem?
- A. limnetic zone
 - B. pelagic zone
 - C. euphotic zone
 - D. littoral zone
59. Shallow warm nutrient-rich lakes are described as
- A. oligotrophic.
 - B. benthic.
 - C. eutrophic.
 - D. limnetic.
60. What is the term used to describe a shallow, partially enclosed area where freshwater enters the ocean?
- A. coral reef
 - B. abyssal ecosystem
 - C. mangrove swamp
 - D. estuary
61. Seaweed and other attached marine organisms prefer to grow in which of the following regions?
- A. benthic
 - B. pelagic

- C. abyssal
- D. neritic

62. The unusual forest biome occurring in California, Oregon, Washington, and British Columbia is called a

- A. tropical rainforest.
- B. boreal forest.
- C. temperate rainforest.
- D. temperate deciduous forest

63. Conservation easements can

- A. decrease the economic value of a tract of land.
- B. restrict access in order to protect endangered species.
- C. prohibit the subdivision or development of a tract of land.
- D. All of the above are correct.

64. You would find a temperate rainforest along the coasts of all of the following states except

- A. southern Alaska.
- B. northern California.
- C. northern British Columbia.
- D. northern New York.

65. Seasonal flooding of the Amazon can create wetland forests known as

- A. the chaparral.
- B. the tropical forest.
- C. the varzea.
- D. the terra firma.

66. Plants in this biome have features to survive long drought even though rainfall totals can be as high as 250 cm in a given month.

- A. savanna
- B. tundra
- C. desert
- D. tropical dry forest

67. On a population growth curve, the _____ phase results in the same percentage increase each year.

- A. lag
- B. deceleration
- C. stable equilibrium
- D. exponential growth

68. Which of the following is the correct sequence of phases in a typical population growth curve?

- A. stable equilibrium, exponential, lag
- B. lag, exponential, stable equilibrium
- C. lag, stable equilibrium, exponential
- D. stable equilibrium, lag, exponential

69. Which phase of a population growth curve is characterized by very slow growth due to reproduction and offspring growth?

- A. lag phase
- B. exponential phase
- C. biotic potential phase
- D. stable equilibrium phase

70. The human population growth curve is currently in which phase?

- A. death phase
- B. lag phase
- C. stable equilibrium
- D. exponential growth

71. In a bacterial growth curve, the population follows a typical growth curve until

- A. waste products become lethal.
- B. raw materials are depleted.
- C. they encounter a lag phase.
- D. there is predation.

72. Terms used to describe factors (or sets of factors) that limit population size (limiting factors) include

- A. extrinsic and intrinsic.
- B. density-dependent and independent.
- C. environmental resistance.
- D. All of these are correct.

73. Factors that control populations that come from outside the population are known as

- A. extrinsic limiting factors.
- B. intrinsic limiting factors.
- C. environmental resistance
- D. density dependant limiting factors.

74. Ecologists refer to the maximum sustainable population for an area as

- A. exponential growth.
- B. lag phase.
- C. carrying capacity.
- D. None of these are correct.

75. In the real world, many organisms don't "fit" clearly into either the r-strategist or K-strategist category for

- A. population reproductive strategies.
- B. human growth factors.
- C. population growth curves.
- D. intrinsic reproduction.

76. Which condition is necessary for a population to grow?

- A. Stabilization must occur.
- B. Mortality must exceed natality.
- C. Birthrate must exceed death rate.

D. Carrying capacity must occur.

77. When a population stops growing and its size no longer fluctuates, it is said to

- A. be at stable equilibrium.
- B. be at the death phase.
- C. be at the lag phase.
- D. have met its biotic potential.

78. A measure of the land area required to provide the resources and absorb the wastes of a population is referred to as the

- A. ecological footprint.
- B. ecological impact.
- C. human impact.
- D. human dependant footprint.

79. Which of the following limiting factors is NOT a component of environmental resistance?

- A. availability of raw materials
- B. organismal biotic potential
- C. availability of energy
- D. accumulation of waste products
- E. All of these are correct.

80. Which organism is affected the most by the accumulation of waste?

- A. humans
- B. plants
- C. small rodents
- D. bacteria

81. K-strategists are

- A. large and long-lived.
- B. small and long-lived.
- C. controlled by density-dependent factors.
- D. large and short-lived.
- E. large and long-lived and controlled by density-dependent factors.
- F. None of these are correct.

82. Which of the following is NOT an environmental factor limiting population size?

- A. disease
- B. predation
- C. biotic potential
- D. space

83. Which of the following countries has the lowest population growth rate?

- A. China
- B. Mexico
- C. India
- D. Sweden

84. Deer invest a great deal of energy in a few offspring that have a good chance of living to reproduce. They are said to be

- A. density-independent.
- B. K-strategists.
- C. replacement fertile.
- D. r-strategists.

85. Oysters produce a million eggs of which only a few find suitable habitat to live. They are said to be

- A. density-dependent.
- B. K-strategists.
- C. r-strategists.
- D. near carrying capacity.

86. Which organism was introduced into the Great Lakes and has expanded its range to the Mississippi River?

- A. zebra mussel
- B. razor clam
- C. small darter
- D. starlings

87. As a result of the ban on international trade of elephant products,

- A. the elephant population has declined.
- B. the antelope population has declined.
- C. native peoples have starved from famine.
- D. the elephant population has exploded.

88. If the human population continues to grow at its current rate, it is expected to double to _____ by the year 2060.

- A. 12 billion
- B. 10 billion
- C. 15 billion
- D. 25 billion

89. Which of the following factors may cause a population to grow?

- A. lower birthrate than death rate
- B. higher birthrate than death rate
- C. low immigration
- D. higher ratio of post-reproductive females

90. Populations of r-strategists will be most affected by

- A. density-dependent factors.
- B. density-independent factors.

91. The current (2004) human population is about

- A. 4.6 billion.
- B. 6.4 billion.
- C. 4 billion.
- D. 10 billion.

92. The Red-Cockaded Woodpecker is an endangered species primarily due to
- A. over hunting by sportsmen.
 - B. commercial logging of mature pine trees which are required for nesting.
 - C. competition with a rival species called the Yellow-Bellied Sapsucker.
 - D. deaths resulting from the introduction of an avian disease by migratory birds.
93. Auburn University was selected as an academic partner in the The War on Hunger Campaign by the
- A. Food and Drug Administration.
 - B. National Association of Colleges.
 - C. United Nations World Food Program.
 - D. United States Department of Agriculture.
94. One of the targets of The United Nations Millennium Development Goals is to decrease the proportion of people lacking access to safe drinking water and basic sanitation by
- A. 100%.
 - B. 10%.
 - C. 25%.
 - D. 50%.
95. The controlled use of fire was the first use of energy in a form other than
- A. wood.
 - B. water.
 - C. biomass.
 - D. wind.
96. The shift from using wood as a source of fuel to coal was caused
- A. by a decline in local supplies of wood.
 - B. the start of World War I.
 - C. an increase in wood prices.
 - D. a decrease in coal prices.
97. The remains of plants, animals, and microorganisms is commonly referred to as
- A. wood.
 - B. compost.
 - C. fossil fuel.
 - D. organic fuel.
98. OPEC began in September of
- A. 1990.
 - B. 1960.
 - C. 1975.
 - D. 2001.
99. In 2008 world oil prices reached over
- A. \$60 per barrel.
 - B. \$80 per barrel.
 - C. \$100 per barrel.

D. \$140 per barrel.

100. The principal use of oil during the first 60 years of production was

- A. kerosene.
- B. gasoline.
- C. heating oil.
- D. lubricating oil.

101. Which country is NOT a member of OPEC?

- A. Nigeria
- B. U.S.
- C. Saudi Arabia
- D. Kuwait

102. When Iraq invaded Kuwait in 1990,

- A. oil prices rose.
- B. oil prices dropped.
- C. oil supply rose.
- D. oil demand dropped.

103. The sharp decline in U.S. oil consumption in 1973 and 1979 was the result of

- A. mandatory conservation.
- B. a drop in reserves.
- C. OPEC price increase.
- D. war with Kuwait.

104. How much of the world's oil reserve is controlled by OPEC?

- A. 100%
- B. 29%
- C. 50%
- D. 78%

105. Since 1970, oil prices were at their highest following production cuts by what three countries?

- A. Norway, United Kingdom, and Nigeria
- B. Iraq, Iran, and United Arab Emirates
- C. Kuwait, Iran, and Libya
- D. Nigeria, Ecuador, and Peru

106. What percent of the world's oil production is controlled by OPEC countries?

- A. 20%
- B. 40%
- C. 60%
- D. 80%

107. Electricity is both a way that energy is consumed and a way that it is

- A. supplied.
- B. divided.
- C. subdivided.

D. None of these are correct.

108. In order for a nation to participate in the Industrial Revolution, they had to have

- A. an automobile industry.
- B. a source of coal.
- C. a source of electricity.
- D. a source of wood.

109. Which country has the highest per capita energy use for transportation?

- A. India
- B. Mexico
- C. Japan
- D. United States

110. The price of a liter of gasoline is determined by

- A. the cost of processing crude oil into gasoline.
- B. the cost of purchasing crude oil.
- C. state and federal taxes.
- D. All of these are correct.
- E. Only the cost of processing crude oil into gasoline and state and federal taxes are correct.

111. Transcontinental pipelines that are currently used to transport natural gas were originally constructed

- A. to transport potable water.
- B. by Chinese immigrants during the Civil War.
- C. to transport oil during World War II.
- D. to transport gasoline for the automobile industry.

112. Choose the correct historical sequence of fuel use in the U.S. from 1800 to the present.

- A. wood, coal, oil, gas
- B. coal, wood, gas, oil
- C. wood, oil, coal, gas
- D. oil, wood, coal, gas

113. The first transfer of energy on Earth occurs

- A. during respiration.
- B. within the molten core.
- C. during photosynthesis.
- D. None of these are correct.

114. What was the chief reason for people to leave farms and move to urban areas during the 1800s?

- A. several years of drought
- B. low market prices for farm products
- C. factories required a supply of labor
- D. None of these are correct.

115. Which of the following did the U.S. government finance during World War II?

- A. natural gas pipeline

- B. oil transport pipeline
- C. off shore oil wells
- D. All of these are correct.

116. Which of the following consumer goods is responsible for creating jobs, increasing energy consumption, and altering people's lifestyle?

- A. television
- B. prefabricated housing
- C. automobile
- D. electric appliances

117. Almost all electrical energy is produced as a result of

- A. burning fossil fuels.
- B. nuclear power.
- C. hydroelectric power.
- D. geothermal power.

118. About 80% of China's population use what type of fuel to produce energy?

- A. oil
- B. biomass
- C. coal
- D. natural gas

119. What type of currently available car engine is the only one with zero emissions?

- A. gasoline powered
- B. methanol powered
- C. solar powered
- D. electric

120. What percent of electricity in the United States is generated by nuclear power plants?

- A. 20%
- B. 40%
- C. 60%
- D. 80%

121. Which of the following is a renewable method to generate electricity?

- A. geothermal
- B. hydroelectric
- C. wind
- D. All of the above.

122. How many years does it take spent nuclear fuel rods to reach safe levels of radioactivity?

- A. 1,000
- B. 10,000
- C. 100,000
- D. 1 billion

123. In what state has the Goshute tribe applied for a site license to store 40,000 metric tons of nuclear waste for 40 years on their reservation?

- A. Ohio
- B. Utah
- C. Montana
- D. North Dakota

124. During what season of the year is the demand for gasoline highest in the United States?

- A. summer
- B. fall
- C. winter
- D. spring

125. Over half of world energy is consumed by 25 countries who are members of

- A. OPEC.
- B. CITES.
- C. EU.
- D. OECD.

126. Energy consumption in the United States dropped in 1973 and 1979 because of

- A. significant price increases by OPEC.
- B. a drop in price by OPEC.
- C. government tax incentives to conserve energy.
- D. the introduction of new solar powered cars.

127. Biomass such as _____ is used by much of the developing world as its energy source.

- A. coal
- B. oil
- C. wood
- D. gasoline