

Entomology's Ecology Test

Name: _____ Score: /60

MULTIPLE CHOICE

Select the best possible answer out of the four choices given. Each question has only one answer unless stated otherwise, and each question is only 1 point unless stated otherwise.

1) In the tundra, Permafrost extends up to how much below the surface?

- A) 450 Meters**
- B) 10 Meters
- C) 309 Meters
- D) 190 Meters

2) There is a small transition region located between the tundra and the forest. What are the possible names of this region? Select all that apply. To receive any points at all, all correct answers must be selected. (5pts)

- A) Tundra-Forest Line
- B) Ecotone**
- C) Transitional Growth
- D) Ecological Boundary Line**
- E) Timber Line**
- F) Sub-Growth Region
- G) Tree Line**
- H) Transition Line

3) A J shaped growth curve represents which type of growth:

- A) Exponential**
- B) Logistic
- C) Uncontrolled
- D) Controlled
- E) None of the above

4) Forests are home to approximately what percentage of the world's terrestrial biodiversity?

- A) 28%
- B) 80%**
- C) 12%
- D) 52%

5) Coevolution is most often seen in which of the following interactions:

A) Predation

- B) Parasitism
- C) Competition
- D) Mutualism

6) Which of the following is not a true statement regarding the tundra?

- A) Southern animals, such as the red fox, are migrating into the tundra as it gets warmer.
- B) Animals living in the tundra are highly vulnerable to reduced snow cover.
- C) Flora survive by use of Allelopathy, allowing them to survive on minimal nutrients.**
- D) Lichen is a significant food source for many species.

7) Which of the following organisms would you not see in a Tundra Ecosystem?

- A) Caribou
- B) Voles
- C) Chamise**
- D) Marmots

8) Most mountain lion species live in the forest. One of these mountain lion species preys on the Pine Martin, a small squirrel-like organism that is a secondary consumer. When the Pine Martin is consumed by the mountain lion, what percentage of its energy is passed onto the mountain lion, which is a tertiary consumer?

- A) 90%
- B) 10%**
- C) 80%
- D) 100%

9) An example of a R-selected species is:

- A) Insects**
- B) Humans
- C) Polar Bears
- D) B and C only

10) In an ecosystem with a carrying capacity and density-dependent factors, this type of growth is most common.

- A) Exponential
- B) Controlled
- C) Linear
- D) Logistic**

11) An epiphyte is a plant that harmlessly grows on the branches of trees in the tropical rainforest. It derives its moisture and nutrients from the air, rain, and sometimes from debris accumulating around it. The interaction between the epiphyte and the tree is:

- A) Parasitism

- B) Mutualism
- C) Ammensalism
- D) Commensalism**

12) The development of biotic communities in an area where the natural vegetation has been removed or destroyed but where soil is present is best described as:

- A) Primary Succession
- B) Secondary Succession**
- C) Biological Succession
- D) None of the above

13) Attempts by two or more organisms of a single species to use the same limited resources in an ecosystem is best described as:

- A) Intraspecific Competition**
- B) Interspecific Competition
- C) Species-specific Competition
- D) All of the above

14) The manner in which a biological taxon is spatially arranged is:

- A) Species Dispersal
- B) Species Distribution**
- C) Niche Distribution
- D) Ecological Dispersal

**Species Distribution is not to be confused with Species Dispersal, which is the movement of individuals away from their area of origin or from centers of high population density

15) The Orangutan is a species in the tropical rainforest. Orangutans disperse seeds, which helps maintain the diversity of the rainforest, as the still air of the rainforest prevents pollination by wind. From the information given, the Orangutan is best described as what type of species?

- A) Sustainability Species
- B) Endangered Species
- C) Keystone Species**
- D) Indicator Species

16) A palatable species that resembles an unpalatable species for its protection possesses this type of mimicry:

- A) Müllerian Mimicry
- B) Mertensian Mimicry
- C) Vavilovian Mimicry
- D) Batesian Mimicry**

17) Ammonification is:

- A) The process by which plants absorb ammonium through root hairs to be used within the plant
- B) The process of oxidizing ammonia to create nitrite (NO_2^-) then oxidizing the nitrite to create nitrate (NO_3^-)

C) The process by which decomposers change nitrogen in detritus to ammonium

- D) All of the above

18) Why is there little diversity in the tundra?

- A) The species living there are genetically similar
- B) The vast amount of tertiary consumers limits the amount of species living there
- C) All the producers die in the summer as a result of the permafrost melting

D) Most species cannot stand the harsh conditions

19) This biome sustains the highest levels of biomass in any terrestrial ecosystem, and is notable for trees of massive proportions.

- A) Temperate deciduous forest
- B) Temperate coniferous forest**
- C) Tropical rain forest
- D) None of the above

20) The Great Smoky Mountains national park is a representation of which type of forest biome?

- A) Boreal Forest
- B) Temperate Deciduous Forest**
- C) Temperate Coniferous Forest
- D) None of the above

21) This is the most common type of species distribution found in nature, characterized by a minimized distance between neighboring individuals.

- A) Uniform
- B) Random
- C) Clumped**
- D) None of the above

22) Examples of limiting factors include:

- A) Temperature
- B) Disease
- C) Sunlight
- D) Space
- E) Food
- F) All of the above**
- G) B, C, D, E

23) The lowest level of ecological organization that includes abiotic and biotic factors is the:

- A) Biome
- B) Community
- C) Ecosystem**
- D) Biosphere

24) Several species of parrots can live in the same tree only because they:

- A) Have different habitats within the tree
- B) Eat different foods within the tree
- C) Occupy different niches within the tree**
- D) Compete with each other

25) Which would be least likely to be affected by a density-dependent limiting factor?

- A) A small, scattered population**
- B) A population with a high birthrate
- C) A large, dense population
- D) A population with a high immigration rate

26) During a long period when there is no rainfall, caribou may temporarily leave its usual hunting territory to find water elsewhere. This behavior is most likely due to

- A) Its need to find different foods to eat
- B) The change in an abiotic factor in its environment**
- C) The caribou's need to find a new habitat
- D) The change in a biotic factor in its environment

27) Which of the following will usually happen in stabilizing selection?

- A) The trait will become more clustered around the mean**
- B) The trait will become more clustered around one extreme
- C) The trait will become more clustered around both extremes
- D) The trait will become evenly distributed among all individuals

28) In a natural ecosystem the biomass of herbivores will be _____ the biomass of carnivores.

- A) Independent of
- B) Greater than**
- C) Less than
- D) The same as

29) All of the following are migratory birds of the tundra except:

- A) Ravens
- B) Snow Buntings
- C) Falcons
- D) Sandpipers
- E) None of the above**

30) Which of the following best describes the interaction between a jaguar and a monkey?

- A) Predation**
- B) Competition
- C) Circle of life
- D) Symbiosis

31) Forests cover approximately:

- A) One-half of earth's land area
- B) One-third of earth's land area**
- C) One-fourth of earth's land area
- D) One-eighth of earth's land area.

32) 125 to 660 cm of rain falls annually in which type of forest biome?

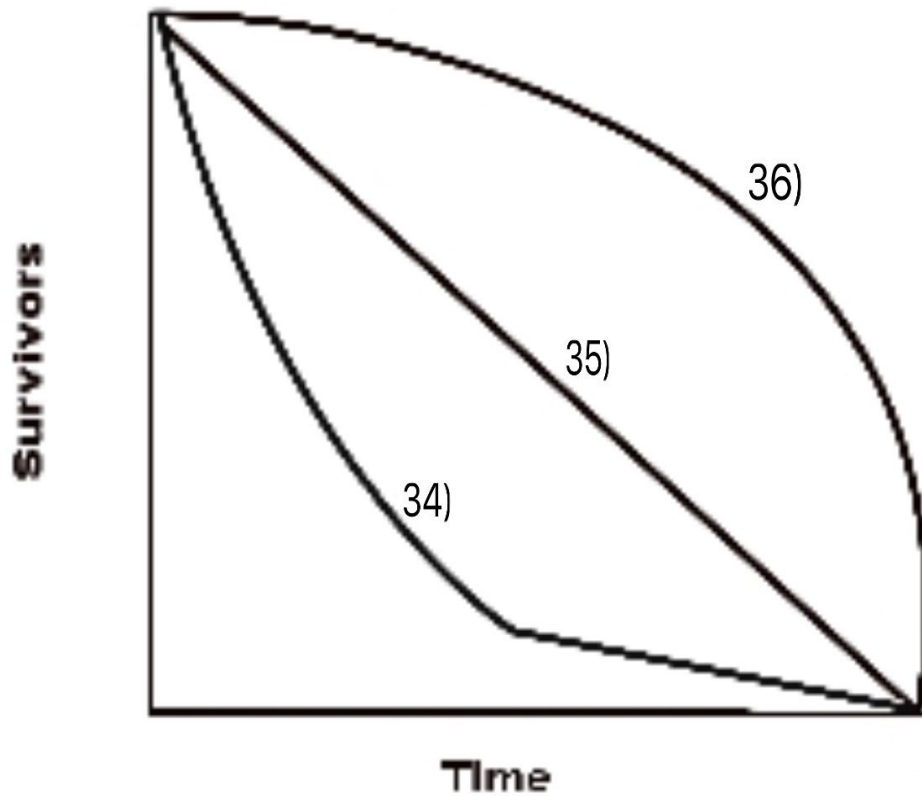
- A) Boreal Forest
- B) Temperate Deciduous Forest
- C) Temperate Coniferous Forest
- D) Tropical Rainforest**

33) The series of predictable changes that occur in a community over time is called

- A) Population growth
- B) Climax community
- C) Ecological succession**
- D) Climate change

SURVIVORSHIP CURVES

Using the diagram below, indicate in the blanks which type of curve each of the following lines is best representative of. Each correct answer is worth one point.

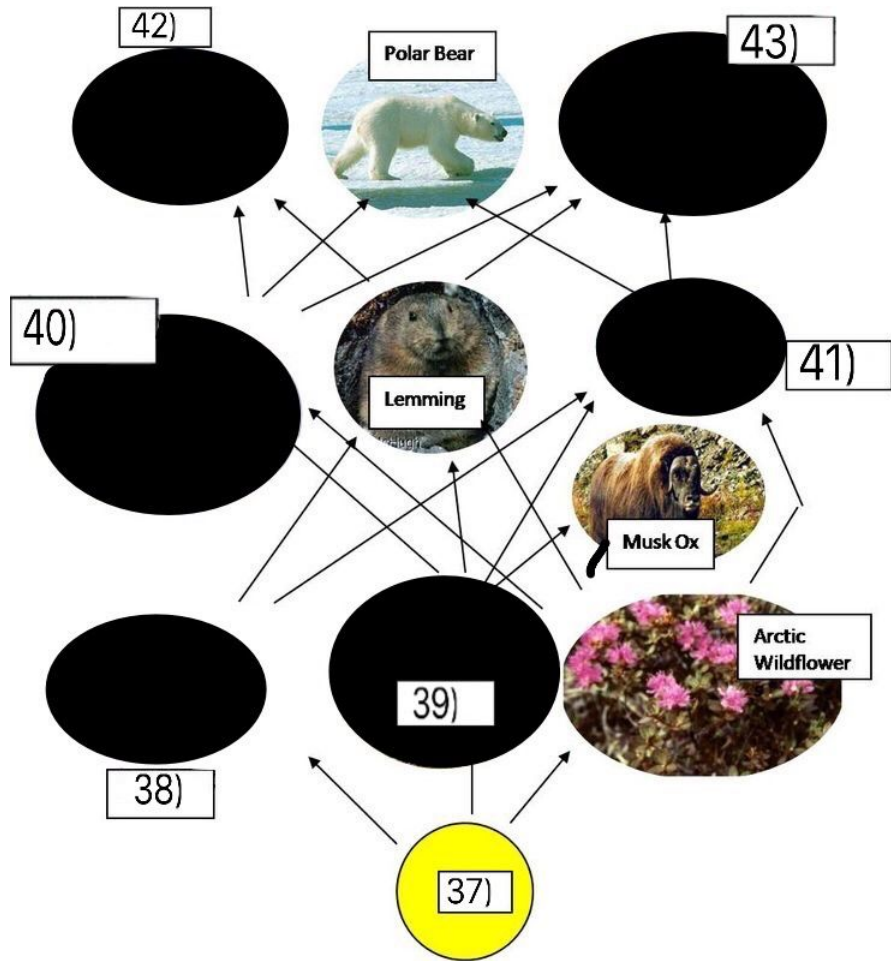


- 34) Type III Survivorship Curve
- 35) Type II Survivorship Curve
- 36) Type I Survivorship Curve

FOOD WEB QUESTIONS

Using the diagram and the word bank below, match each letter to the best possible blank corresponding place on the diagram. (1 pt for each correct answer)

- A- Caribou
- B- Lichen
- C- Hawk
- D- Grasses
- E- Wolf
- F- Sun
- G- Arctic Hare



- 37) F
- 38) B
- 39) D
- 40) G
- 41) A
- 42) C
- 43) E

44) Name at least three things that the wolf consumes. (1 pt for all answers, All answers must be correct to receive credit)

Arctic Hare, Lemming, Caribou

45) Name all the secondary consumers in this diagram. (1 pt for all answers, All answers must be correct to receive credit)

Musk Ox, Caribou, Lemming, Arctic Hare

46) Both the Lemming and the Caribou consume all three primary producers in this diagram. The interaction between the two can best be described as:

Competition

47) Assume that the caribou is more suited to compete for resources than the lemming. According to an ecological principle, the lemming should either adapt or die out. What is the name of this principle? (3pts)

Competitive Exclusion or Gause's Law

48) What is an alternative name for this type of diagram, excluding the name "food web"?

Food cycle or Consumer-Resource system

49) Briefly define biodiversity, and give at least two examples of threats to biodiversity specific to the Tundra and Forest ecosystems, and explain why these threats are detrimental. One threat should pertain to the Tundra, and the other threat should pertain to the Forest. (5 pts)

Biodiversity- the variety of life in the world or in a particular habitat or ecosystem.

Possible threats to the Tundra:

-Global warming (the snow is melting and disrupting the delicate homeostasis of the ecosystem)

-Reduced snow cover (many organisms are adapted to the colder weather, and melting snow creates an unfavorable habitat for the plants already living there)

-Ozone depletion (At the North and South Poles, there are stronger ultraviolet rays that will harm the tundra)

Possible threats to the Forest:

-Deforestation (removes trees, an essential organism to the forest as it provides food and habitat)

-Desertification (see above explanation)

-Droughts (Less water=Less plants, kills producers in ecosystem and disrupts the homeostasis)

50) Which treaty protects the native fauna and flora of the Antarctic tundra? (1pt)

Antarctic Treaty System or Antarctic Treaty