



Choose the best answer from the given alternatives (unit 2:12th Ecology)

2.1. Cycling matter

- Which one of the following is **NOT** true about the flow of energy in the ecosystem?
A. pass from one trophic level to the next
B. It enters the ecosystem in the form of light
C. It leaves the ecosystem in the form of heat
D. It is recycled by decomposers
- Which one of the following represents the highest hierarchical levels of organization?
A. Biosphere B. Ecosystem C. Population D. Community
- In ecosystem, all of the following is passed from one trophic level to the other cyclic manner except?
A. Nitrogen B. Water C. Carbon dioxide D. Energy
- What is the type of nutrition shown by decomposers?
A. Parasitic B. Mutualistic C. Saprophytic C. Autotrophic
- Which one of the following processes in carbon cycle carried out by humans only that add CO₂ to the atmosphere?
A. Respiration B. Photosynthesis C. Combustion D. Fossilization
- Which one of the following processes in carbon cycle reduces carbon dioxide concentration from the atmosphere?
A. Respiration B. Photosynthesis C. Combustion D. Fossilization
- Which one of the following processes in carbon cycle carried out by all living things that add CO₂ to the air?
A. Respiration B. Photosynthesis C. Combustion D. Fossilization
- Which one of the following nutrients does **not** cycle through the atmosphere?
A. Carbon B. Sulphur C. Phosphorus D. Nitrogen
- Which one of the following bacteria in nitrogen cycle transforms gaseous nitrogen into nitrogen containing compound?
A. Rhizobium B. Nitrosomonas C. Pseudomonas D. Decomposer
- Which one of the following processes in nitrogen cycle decrease the amount of nitrogen in circulation?
A. Nitrification B. Denitrification C. Ammonification D. Nitrogen fixation
- Which one of the following is sulphur-containing gas that contributes to acid rain?
A. Sulphate B. Hydrogen sulphide C. Sulphur dioxide D. Sulphur bacteria
- Which one of the following nutrients has a sedimentary cycle?
A. Carbon B. Phosphorus C. Hydrogen D. Nitrogen
- During carbon cycle, which of the following carbon compounds would be utilize as an energy source by heterotrophs?
A. Carbon dioxide B. Calcium carbonates C. Carbonic acid D. Organic molecule
- Which pair of process return carbon dioxide to the atmosphere
A. Photosynthesis and respiration C. Combustion and Respiration
B. Decomposition and photosynthesis D. Evaporation and respiration



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15. Both photosynthesis and respiration involve in:
A. Nitrogen cycle B. Carbon cycle C. Water cycle D. Phosphorus cycle
16. What is the important role played by microorganism such as bacteria and fungi
A. Recycling of nutrients C. Forming organic nutrients
B. Antibiotic production D. Supplying energy to the ecosystem
17. Which of the following is **not** true about climax community?
A. Has wide diversity of species C. Colonise by pioneer population
B. It is a final stable community D. The vegetation tolerant the environment
18. A nitrogen fixing bacteria in the root nodules of legumes plant that can fix nitrogen gas to ammonium ion?
A. Pseudomonas B. Azatobacter C. Rhizobium D. Nitrobacter
19. Which one of the following bacteria in sulphur cycle releasing hydrogen sulphide from dead bodies of organisms?
A. Thiobacillus B. Rhizobium C. Nitrobacter D. Desulphovibrio
20. Which one of the following organisms feed saprobiotically to break down the dead remains of organisms and releases mineral ions contained in organic molecules?
A. Producers B. Decomposers C. Consumers D. Autotrophs
21. Which one of the following bacteria in sulphur cycle breaks down protein dead bodies into hydrogen sulphide?
A. Thiobacillus B. Photosynthetic sulphur bacteria C. Nitrobacter D. Desulphovibrio
22. What is the process by which bare ground becomes a complex ecosystem?
A. Conservation B. Biodiversity C. Succession D. Decomposition
23. What is the sulphur-containing gas is released when organisms are decayed?
A. Hydrogen sulphide B. Sulphur bacteria C. Nitrobacter D. Sulphur dioxide
24. Which one of the following processes in water cycle convert gaseous water into liquid from as it cools down?
A. Evaporation B. Percolation C. Condensation D. Precipitation
25. The most inclusive level of organization is:
A. Biosphere B. Community C. Biome D. Ecosystem
26. Which component of soil fertility is improved when farmer grow legumes in crop rotation?
A. Phosphorus B. Nitrogen C. Sulphur D. Nitrogen
27. Which of the following parts of plant roots is harboring nitrogen fixing bacteria?
A. Root nodules B. Root hair C. Root tip D. Root cap
28. In nitrogen cycle nitrogen is returned to the atmosphere by
A. Nitrogen fixing bacteria C. Ammonifying Bacteria
B. Nitrifying bacteria D. Denitrifying Bacteria
29. Which one of the following bacteria in sulphur cycle oxidise hydrogen sulphide into sulphate in aerobic condition?
A. Thiobacillus B. Pseudomonas C. Nitrobacter D. Desulphovibrio

1.D	3.D	5.C	7.A	9.A	11.C	13.A	15.B	17.C	19.D	21.D	23.A	25.A	27.A	29.A
2.A	4.C	6.B	8.C	10.B	12.B	14.C	16.A	18.C	20.B	22.C	24.D	26.D	28.D	



2.2. Succession

- Which of the following plant in primary succession is pioneer colonizer?
A. Herbs B. Lichens C. Shrubs D. Climax forest
- Which type of community in ecological succession has the most diverse species found?
A. Pioneer B. Annual herb C. Perennial herbs D. Climax
- Which of the following is the starting point of primary Succession
A. Abandoned form land C. Forest destroyed by fire
B. Forest cleared by human D. Previously uncolonised ground
- One of the following statements **wrong** about an ecological succession as it passes from pioneer to climax community?
A. Total biomass of the community increases
B. The number of ecological niches reduce
C. Food webs become more complex.
D. The community becomes more stable
- The name of given to the pioneer plants that begin primary succession on a very dry substratum like bare rock , sand done is:
A. Hydrophytes B. Mesophytes C. Halophytes D. Xerophytes
- A succession from open water to wood land which one of the following community established in the sediment formed by the dead animals
A. Submerged vegetation C. Emerging vegetation
B. Temporary pond and prairie D. Beech and Maple forest
- Which one of the following in primary succession are extremely resilient organisms that able to colonise harsh environments and reproduce?
A. Herbs B. Lichens C. Shrubs D. Climax forest
- Which stage of primary ecological succession has the lowest species diversity?
A. The pioneer community C. The third seral stage
B. The climax community D. The second seral stage
- What is the ecological succession in which plant communities establish after an area has been completely demolished by fire?
A. Tree succession C. Secondary succession
B. Primary succession D. Bare rock succession
- Which stages of ecological succession contain more biodiversity?
A. The third serial stage C. Second serial stage
B. The climax community D. The pioneer community
- Which one of the following is **NOT** in situ conservation of biodiversity?
A. Biosphere reserves C. Botanical garden
B. Sanctuaries D. National park
- Which of the following term is used to refer to the maximum number of individual that a given environment can support?
A. Carrying capacity B. Limiting factor C. Climax community D. Succession
- The stages in a succession are referred to as:
A. pioneers B. seres C. climaxes D. communities



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1.B 3.D 5.D 7.B 9.C 11.A 13.B
2.C 4.B 6.A 8.A 10.B 12.C

2.3. Biomes

1. From the following is biome of the world, which one has the most productive natural land ecosystem?
A. Temperate deciduous B. Boreal forest C. Tropical rainforest D. Temperate
2. In which biome of the world is succulent and ephemerals are common?
A. Savanna B. Deciduous forest C. Hot desert D. Taiga
3. To determine biome type the most significant climatic factor is:
A. Temperature and precipitation C. Wind and precipitation
B. Temperature and Topography D. Precipitation and oxygen concentration
4. Which one of the following is the correct structure of rainforest from top to down
A. Forest floor → Canopy → Understory → Emergent
B. Emergent → Canopy → Understory → Forest floor
C. Canopy → Understory Forest floor → Emergent
D. Canopy → Emergent → Understory → Forest floor
5. In which biome of the world is epiphyte is common?
A. Tundra B. Desert C. Thorn forest D. Tropical rainforest
6. One of the following biome is characterized by high competition for light among the vegetation of the biome?
A. Tundra B. Deciduous forest C. Tropical rainforest D. Coniferous forest
7. As an ecological succession passes from a lower to higher seral stage, which of the following will **NOT** happen?
A. The community get more complex C. Species get more complex
B. Soil nutrient is depleted D. Ecological niche increase
8. Which of the following is the largest ecological unit?
A. A community B. A biome C. A population D. An ecosystem
9. Which one of the bacteria returns nitrogen to the air?
A. Pseudomonas B. Nitrobacter C. Rhizobium D. Nitrosomonas
10. The most appropriate term that is used to a group ecologically similar organism in a geographically and climatically defined regions;
A. Ecosystem B. Habitat C. Biome D. Community
11. Which type of biome is characterized by dry hot summer and rainy cool winter?
A. Thorn forest B. Mountain forest C. Rain forest D. Deciduous forest
12. Which type of biome is characterized by high temperature and high rain fall?
A. Thorn forest B. Mountain forest C. Rain forest D. Deciduous forest
13. Climatically and geographically limited ecological area with specific flora and fauna type is:
A. Biosphere B. Community C. Population D. Biome
14. The high species richness of plants and mammals in Ethiopia is due to largely:
A. the lack of disturbance C. efficient ecological management
B. presence of several different biomes D. lack of predators



15. Which type of marine biome is the most diverse marine habitat?
A. Pelagic B. Abyssal C. Estuarine D. Coral reef
16. In which one of the following way tundra biome differ from desert biome?
A. It has permanently frozen sub soil C. It has little biodiversity
B. It is a treeless biome D. It receives little precipitation
17. Which type of marine biome unique due to mixing of saltwater and freshwater?
A. Pelagic B. Abyssal C. Estuarine D. Coral reef
18. In which type of biome is fire resistant animals and plants dominated?
A. Thorn forest B. Mountain forest C. Rain forest D. Deciduous forest
19. Taiga forest is characterized by
A. Poor soil, cooler year round and conifers
B. Poor soil, cooler year round and cactus
C. Permafrost cold season and epiphytes
D. Fertile soil, always warm and large deciduous trees
20. Suppose A, B, C and D have Simpson's index of diversity value of 7, 5, 14 and 6 respectively, which site is dominated by one or just few species?
A. Site A B. Site B C. Site C D. Site D
21. How human beings increase biodiversity?
A. By reducing species richness C. By promoting habitat uniformity
B. By increase genetic variability D. By narrowing ecological variability
22. The key to conserve biodiversity is:
A. using hardly any of the current biodiversity
B. replacing any of the animals or plants we use
C. maintaining habitats where at all possible
D. using only specially bred stock animals and crop plants
23. In Ethiopia, which of the following group of vertebrates is the most diverse term of species number?
A. Mammals B. Reptiles C. Birds D. Amphibians
24. Which of the following is a threat to the survival of population?
A. Habitat destruction C. Disease resistance
B. Breeding in capacity D. Absence of competition
25. Which factors are involved in the determination of climax vegetation?
A. Temperature and precipitation C. Grazing and Browsing
B. Radiation and reflection D. Predator and pray
26. Which group of organism fond in Ethiopia is represented by the highest endemic taxa?
A. Mammals B Amphibians C. Birds D. Plants
27. In which aspect of biodiversity are such measures like richness, abundance and taxonomic diversity in population commonly applied?
A. Ecosystem diversity B. Species diversity C. Cultural diversity Genetic diversity

1.C	3.A	5.B	7.B	9.A	11.A	13.D	15.C	17.C	19.A	21.B	23.C	25.A	27.B
2.C	4.B	6.C	8.D	10.C	12.C	14.B	16.A	18.A	20.B	22.C	24.A	26.C	.



2.5. Population

1. Which of the following can create strong interspecific competition if shared by two or more species?
A. Habitat B. Ecosystem C. Niche D. Predator
2. In ecological context, which of the following is a population?
A. All living organism in a habitat
B. An individual of the same species in a habitat
C. All producer in a habitat
D. All the consumer in a habitat
3. In which one of the four phase of population growth is the number of population is lowest?
A. Lag B. Log C. Stationary D. Decline
4. One of the following is the biotic factor of which affect the size of population?
A. Light B. Humidity C. Temperature D. Predation
5. Under ideal condition and unlimited resource, continues population growth pattern is called:
A. Exponential growth B. Logistic C. Density dependent growth D. population distribution
6. Which one of the following represents the population growth curve of a species with a limited resource?
A. Exponential growth B. Logistic C. Density dependent growth D. population distribution
7. Which one of the following is true about a population whose size is maintained at the carrying capacity of its environment?
A. It grows at its biotic potential
B. It overshoots the environmental resistance
C. It maintain dynamic equilibrium with the environment
D. Its growth rate eventually decline
8. One of the following is true about exponential growth of population?
A. Mortality exceeds natality C. Larger proportion of older people
B. Natality exceeds mortality D. Low life expectancy
9. In which one of the four phase of population growth is the number of population remain fairly constant?
A. Lag B. Log C. Stationary D. Decline
10. Which one of the following demographic factors affects the number human population globally?
A. Migration B. Immigration C. Natality D. Emigration
11. In stage of demographic transition postindustrial stage is characterized by:
A. High death and low birthrate C. An expanding population
B. Low death and low birthrate D. Low life expectancy
12. What is the best term that refers to the maximum number of individual that a given environment can support over a long period of time without degradation?
A. Limiting factor B. Carrying capacity C. Density D. Climax community
13. In ecosystem, which of the following pairs is intraspecific competition expected to be strong?
A. Producer versus herbivores C. Predator verse decomposer
B. Herbivores verse carnivores D. Carnivores verse carnivores



14. Which of the following decrease the size of population?
- A. Immigration rate greater than death rate
 - B. Emigration rate greater than birth rate
 - C. Birthrate greater than death rate
 - D. Emigration rate less than immigration rate
15. When do populations of living organism show exponential growth?
- A. When the resource are plentiful
 - B. Whenever they enter a new environment
 - C. When they face strong competition from other species
 - D. When the carrying capacity of the environment is reached
16. If the age of pyramid of certain country is narrowing at the base, what does this tell about the trend of population size of the country? The population size is
- A. Stabilizing
 - B. Increasing slowly
 - C. Growing fast
 - D. Declining
17. If the age of pyramid of certain country is broad at the base, what does this tell about the trend of population size of the country? The population size is
- A. Stabilizing
 - B. Increasing slowly
 - C. Growing fast
 - D. Declining
18. Which of the following is **not a true** characteristic of the populations of most of the developing countries of the world?
- A. High fertility rate
 - B. Increasing population size
 - C. More number of old people than young people
 - D. Birthrate greater and death rate
19. What could be the main reason behind the currently observed slow or stable rate of population growth in the industrial country?
- A. Poor healthy country
 - B. Good family planning
 - C. Increasing death rate
 - D. High rate of child death
20. In which stage of logistic population growth curve, the populations grow exponentially due to plentiful resource?
- A. Lag
 - B. Log
 - C. Stationary
 - D. Decline
21. In demography transition, which one is not the characteristic of preindustrial stage?
- A. High birthrate and high death rate
 - B. Rapid increase in population growth
 - C. High population growth
 - D. Low birth rate and death rate
22. Which one of the following is the best example of inter-specific competition?
- A. Seed germinating in large number at a point
 - B. Ethiopian wolf and domestic dog hunting for rat
 - C. Caterpillars hatched in large number on tree leaves
 - D. Many human families occupying a small plot of land
23. What is the impact of human on sulphur cycle? Production as
- A. Sulphur dioxide through combustion of fossil fuel
 - B. Sulphate through weathering and oxidation of rocks
 - C. Hydrogen sulphide through oxidation of sulphur
 - D. Sulphur through decomposition of dead matter



24. A population is a group of
A. individual in a species
B. community in an ecosystem
C. species in a community
D. individual in a community
25. Exponential growth occur when there is
A. a great environmental resistance
B. no biotic potential
C. no environmental resistance
D. a fixed carrying capacity
26. In a population, unrestricted reproductive capacity is called as
A. carrying capacity B. biotic potential C. birth rate D. fertility rate
27. Growing legumes such as alfalfa or soy beans increase
A. Denitrification
B. ammonification
C. nitrogen fixation
D. nitrification
28. Which of the following process moves carbon stored in fossil fuel into the air?
A. The denitrifying bacteria turns the fossil into carbon dioxide,
B. Decomposer convert the fossil fuel into carbon dioxide
C. The fossil fuel reacts with the soil to produce carbonates and carbon dioxide
D. When fossil fuels are burned, carbon entered the atmosphere as carbon dioxide.
29. In addition to nitrogen fixing bacteria what other process will convert atmospheric nitrogen into a form of plant use?
A. Burning fossil fuel
B. Precipitation
C. Lightening
D. photosynthesis
30. The final stable community in an ecological succession is called the
A. final community
B. climax community
C. ultimate community
D. serial community
31. In what stage in the demographic transition theory does death rate fall while birthrate remains high leading to rapid population growth?
A. Pre-industrial stage
B. Mature industrial stage
C. Mechanization of urbanization
D. postindustrial stage
32. What is the growth pattern in which a population growth rate slows or stops following a period of exponential growth?
A. Logistic growth
B. Density dependent
C. Arithmetic growth
D. J shaped growth

1.C	4.D	7.C	10.C	13.D	16.D	19.B	22.B	25.C	28.D	31.C
2.B	5.A	8.B	11.B	14.B	17.C	20.B	23.A	26.B	29.C	32.A
3.A	6.B	9.C	12.B	15.A	18.C	21.A	24.A	27.C	30.B	