BIOLOGY

BOOKS - AAKASH SERIES

ECOSYSTEM

Exercise I Ecosystem Structure And Function

1. Limnology is the study of

A. Fresh water ecosystem

B. Marine water ecosystem

C. Brackish water ecosystem

D. Terrestrial ecosystem

Answer: A

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2. The study of organisms in relation to their environment is the definition of

A. Morphology

B. Ecology

C. Embryology

D. Biome

Answer: B

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3. The term "ecology" was first used by

A. Reiter

B. Warming

C. Tansley

D. Odum

Answer: A

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4. Scientist who defined ecology as the study of interrelationships between organisms and their environment is

A. Reiter

B. E.P.Odum

C. Haeckel

D. Warming

Answer: C

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5. Man made ecosystems are

A. Artificial ecosystem

B. Marine water ecosystem

C. Terrestrial ecosystem

D. Forests ecosystems

Answer: A

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6. Artificial ecosystems are

A. Cropland ecosystem

B. Aquaculture ponds

C. Aquarium

D. All the above

Answer: D

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7. A group of organisms of same species living in a specific area at a specific time is called

A. Population

B. Community

C. Fauna

D. Flora

Answer: A

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8. Levels of biological organisation with which ecology deals is

A) Organisms B) Biomes

C) Populations D) Communities

A. B only

B. A,C only

C. A,C,D only

D. A,B,C,D

Answer: D

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9. Fundamental unit of nature is

A. Organisms

B. Environment

C. Ecosystem

D. Ecology

Answer: C

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10. According to many ecologists the entire biosphere is regarded as

A. Local ecosystem

B. Global ecosystem

C. Universal ecosystem

D. Community ecosystem

Answer: B

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11. The two basic categories of the biosphere are

A. Terrestirial

B. Aquatic

C. Both (1) & (2)

D. None

Answer: C

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12. Forest, grassland and deserts are examples of

A. 1)Man-made ecosystems

B. 2)Aquatic ecoystems

C. 3)Terrestrial ecosystems

D. 4)(1) & (2)

Answer: C

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13. An aquarium is a

A. Terrestrial ecosystem

B. Natural aquatic ecosystem

C. Man made aquatic ecosystem

D. (1) & (2)

Answer: C

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14. Largest of all aquatic ecosystem is

A. 1)Marine water ecosystem

B. 2)Estuarine ecosystem

C. 3)Fresh water ecosystem

D. 4)Lake ecosystem

Answer: A

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15. In the region where river joins the sea, salinity of water depends on

A. Seasons

B. Altitude

C. Climate

D. Gravity

Answer: A

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16. The smallest aquatic ecosystem includes

A. Oceans, Seas

B. Rivers, Lakes, Ponds

C. Estuary

D. 1 & 3

Answer: B

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Exercise I Productivity

1. The rate of production of organic matter of an ecosystem during photosynthesis is

A. Net primary productivity

B. Gross primary productivity

C. Primary productivity

D. Secondary productivity

Answer: B

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2. Gross primary productivity minus respiration losses of an ecosystem is

A. Primary productivity

B. Net Productivity

C. Net primary productivity

D. Secondary productivity

Answer: C

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3. The available biomass for the consumption to heterotrophs is called

A. Gross primary productivity

B. Net primary productivity

C. Primary productivity

D. Secondary productivity

Answer: B

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4. Gross primary productivity is

A. Rate at which organic molecules are formed in autotrophs

B. Rate at which organic molecules are used up by autotrophs

C. Storage of organic molecules in the body of autotrophs

D. Rate at which organic molecules are transferred to next higher trophic level

Answer: A

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5. ___ is the rate of production of organic matter by consumers.

A. Primary productivity

B. Secondary productivity

C. Net primary productivity

D. Gross primary productivity

Answer: B

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6. The biomass available for consumption by the herbivores and the decomposers is called

A. net primary productivity

B. secondary productivity

C. standing crop

D. gross primary productivity

Answer: A

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7. Productivity is the rate of production of biomass expressed in terms of

i) $\left(\text{kcal}m^3\right)yr^{-1}$ ii) $g^{-2}yr^{-1}$

iii) $g^{-1}yr^{-1}$ iv) $\left(\text{kcal}\ \ m^{-2}\right)yr^{-1}$

A. ii

B. iii

C. ii and iv

D. i and iii

Answer: C

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8. The energy storage at producer level which can be consumed by herbivores

A. Net productivity

B. Net primary productivity

C. Secondary productivity

D. Gross primary productivity

Answer: B

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9. A certain mass of living material at a particular time in each trophic level is called

A. Standing state

B. Stratification

C. Standing crop

D. Species composition

Answer: C

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10. The NPP in a plant is 100kj. What is the body mass of the secondary carnivore?

A. 100 KJ

B. 10KJ

C. 1KJ

D. 0.1KJ

Answer: D

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11. Which of the following is expected to have the highest value $\left(gm / m^2 / yr\right)$ in a grassland ecosystem?

A. Secondary production

B. Tertiary production

C. Gross production (GP)

D. Net production (NP)

Answer: C

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12. Which of the following statements about decomposition is incorrect?

A. Decomposers break down complex organic matter into inorganic substances

B. Water insoluble organic nutrients go down into the soil horizon during the process of leaching

C. In fragmentation, detrivores break down detritus into smaller particles

D. Saprophytic bacteria and fungi secrete digestive enzymes over the fragmented detritus

Answer: B

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13. Most important climatic factors that regulate the rate of decomposition are

A. Temperature and soil moisture

B. Soil pH and aeration

C. Aeration and temperature

D. Moisture and soil pH

Answer: A

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14. The raw material for decomposition, the detritus includes

A. Dead plant remains

B. Dead remains of animals

C. Faecal matter

D. All the above

Answer: D

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15. Various steps in decomposition are

A. Fragmentation

B. Leaching and catabolism

C. Humification and mineralization

D. All the above

Answer: D

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16. Breakdown of detritus into smaller particles by earthworm is a process called

A. Fragmentation

B. Leaching

C. Catabolism

D. Humification

Answer: A

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17. The process by which water soluble inorganis nutrients go down into the soil horizon and get precipitated as unavailable salts is called :

A. Fragmentation

B. Leaching

C. Catabolism

D. Humification

Answer: B

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18. Degradation of detritus into simple inorganic substances by the enzymatic action of bacteria and fungi is called

A. Fragmentation

B. Leaching

C. Catabolism

D. Humfication

Answer: C

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19. Decomposition is largely

A. A non oxygenic process

B. An oxygen requiring process

C. A rapid process

D. Both (1) and (3)

Answer: B

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20. The rate of decompostion is controlled by

A. Chemical composition of detritus

B. Climatic factors

C. Both (1) and (2)

D. None

Answer: C

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21. Decomposition is largely

A. Lignin and nitrogen

B. Chitin and sugars

C. Nitrogen and sugars

D. Lignin and chitin

Answer: D

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Exercise I Decomposition

1. The organisms that thrive upon the remains of dead plants and animals are categorised as

A. Carnivores

B. Omnivores

C. Scavengers

D. Predators

Answer: C

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Exercise I Energy Flow

1. What perentage of incident solar radiatoin is captured in photosynthesis by plants ?

A. 0.8 - 4%

B. 0.2 - 1%

C. 1 - 5%

D. 0.5

Answer: C

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2. The amount of energy available at successive trophiclevels

A. Decreases

B. Increases

C. Remain same

D. Always 10%

Answer: A

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3. Of the incident solar radiation, percent of the photosynthetically active radiation (PAR) is

A. 750

B. < 50

C. 100

D. 0

Answer: B

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4. Percentage of photosyntetically active radiation (PAR) that is captured by plants in synthesis of organic matter is

A. More than 50

B. 100

C. Only 2 - 10

D. Zero

Answer: C

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5. Flow of energy declines from lower to higher trophic level in ecosystem is mainly explained by :

A. First law of thermodynamics

B. Second law of thermodynamics

C. Both of these

D. None of the above

Answer: B

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6. As per the second law of thermodynamics the energy degraded is in the form of unavailiable heat energy and constitute

A. Entropy

B. Standing crop

C. Biomass

D. Pyramid

Answer: A

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7. The average energy transfer from one animal to another animal is (According to Lindeman's rule)

A. 0.1

B. 0.2

C. 20% - 30%

D. 0.99

Answer: A

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8. If 0.16 kJ is the NSP in tertiary carnivores what is the NPP in that ecosystem (Note: 0.01% of NPP is transfered to the tertiary carnivores

A. 80 J

B. 400 J

C. 1600 KJ

D. 8000 KJ

Answer: C

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1. An ecosystem contains

A. Green plants and animals

B. Green plants and decomposers

C. Green plants, animals, decomposers and abiotic environment

D. Producers and consumers

Answer: C

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2. The following is a logical sequence

A. Consumer-Producer-Decomposer

B. Producer-Decomposer-Consumer

C. Producer-Consumer-Decomposer

D. Decomposer-Consumer-Producer

Answer: C

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3. Biological equilibrium is an equilibrium among the

A. Decomposers and producers only

B. Producers and consumers only

C. Producers, consumers and decomposers

D. Producers only

Answer: C

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4. When peacok eats snakes, which eat insects thriving on green plants, the peacock is

A. A primary decomposer

B. A primary consumer

C. The apex of food pyramid

D. Final decomposer

Answer: C

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5. Which one of the following animals may occupy more than one trophic levels in the same ecosystem at the same time?

A. Sparrow

B. Lion

C. Goat

D. Frog

Answer: A

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6. Which one of the following types of organisms occupy more than one trophic level in a pond ecosystem?

A. Fish

B. Zooplankton

C. Phytoplankton

D. Frogs

Answer: A

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7. The stability of ecosystem is maintained by

A. Grazing food chains

B. Parasitic food chains

C. Detritus food chains

D. Food web

Answer: D

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8. The food chain ends with

A. Parasites

B. Predators

C. Herbivores

D. Climax carnivores

Answer: D

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9. Food webs in the ecosystem are formed due to

A. Independency

B. Interdependency

C. Both (1) and (2)

D. None

Answer: B

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10. The correct path of energy flow in an ecosystem is

A. Herbivores $\rightarrow$ Carnivores $\rightarrow$ Producers $\rightarrow$ Decomposers

B. Herbivores $\rightarrow$ Producers $\rightarrow$ Carnivores $\rightarrow$ Decomposers

C. Producers $\rightarrow$ Herbivores Decomposers $\rightarrow$ Decomposers

D. Producers Herbivores $\rightarrow$ Carnivores $\rightarrow$ Decomposers

Answer: D

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11. A food chain starts with.....

A. Nitrogen fixation organisms

B. Photosynthesising organisms

C. Consumers

D. Decomposers

Answer: B

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12. In a food chain herbivores are

A. Primary consumers

B. Decomposers

C. Primary producers

D. Secondary consumers

Answer: A

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13. The sequence for species through which the organic molecules in community pass is called a

A. Food web

B. Food chain

C. Nutrient cycle

D. Pyramid of energy

Answer: B

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14. A group of interconnected food chains is called

A. Pyramid of energy

B. Food web

C. Food cycle

D. Complex food chain

Answer: B

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15. Which of the following statement about GFC is incorrect ?

A. Sun is the source of energy

B. Begins with consumers

C. Major conduit for energy flow in aquatic ecosystems

D. Size of organisms commonly increase at higher trophic levels.

Answer: B

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16. In a food chain, the largest population is that of

A. Primary consumers

B. Secondary consumers

C. Decomposers

D. Producers

Answer: D

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17. In detritus food chain, primary consumers are

A. Insects, Larvae, Nematodes

B. Herbivores

C. Bacteria and fungi

D. All of these

Answer: C

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18. A detritus food chain in comparison to grazing food chain is

A. Equal

B. Broader

C. Longer

D. Shorter

Answer: D

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19. The transfer of energy from organism to organism in a natural community establishes

A. Natural barriers

B. Biological control

C. Food chains

D. All the above

Answer: C

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20. We refer to the following as the food chain

A. Large number of human beings forming a human chain near a source of food

B. Large number of animals near a source of food

C. Transfer of food energy from the green plants through a series consumed by organisms

D. None of these

Answer: C

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21. In a food chain phytoplankton $\rightarrow z\infty plank \rightarrow nsmallfishtosquid$ to` seal. what is seal?

A. Tertiary consumer

B. Secondary carnivore

C. Tertiary carnivore

D. Climax herbivore

Answer: C

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Exercise I Ecological Pyramids

1. A ecological pyramid, devised by C. Elton 1927 is a graphic diagram that shows relationship between

A. Transfer of food through food chains

B. Organisms

C. Various trophic levels of a food chain

D. Populations and communities within an ecosystem

Answer: C

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2. Pyramid of number in a cropland ecosystem is

A. Upright

B. Inverted

C. Rhomboidal

D. Spindle shap

Answer: A

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3. Ecological pyramids does not accomodate

A. Food Chain

B. Trophic levels

C. Food web

D. None

Answer: C

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4. For tree and grassland ecosystems, pyramid of biomass is

A. Upright

B. Inverted

C. Spindle - shaped

D. Urn-shaped

Answer: A

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5. Pyramid of numbers is

A. Always upright

B. Always inverted

C. Either upright or inverted

D. Neither upright nor inverted.

Answer: B

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6. An inverted pyramid of biomass can be found In thch ecosystem?

A. Tundra

B. Desert

C. Sea

D. Rain forest

Answer: C

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7. Who accepts the nutrient released in environment by decomposer ?

A. Producers

B. Consumers

C. Secondary Consumers

D. None of the given

Answer: A

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8. Which of the folllowing ecological pyramids can be both upright and inverted?

A. Pyramid of Number

B. Pyramid of biomass

C. Pyramid of energy

D. Both (1) & (2)

Answer: D

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9. If producer is a large tree that supports a number of herbivorous animals which are further attacked by ectoparasites, the pyramid of number shall be

A. Inverted

B. Upright

C. Irregular

D. Spindle shaped

Answer: A

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10. The organisms which are not represented in ecological pyramids are

A. Producers

B. Saprophytes

C. Herbivores

D. Carnivores

Answer: B

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11. In pyramid of numbers, from the lower trophic level to higher trophic level there is progressive

A. Decrease in number and size of organisms

B. Increase in number and size of organisms

C. Decrease in number and increase in size of organisms

D. Increase in number and decrease in size of organisms

Answer: C

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12. The relationship between organisms of different trophic levels is ideally represented by pyramid of

A. numbers

B. biomass

C. energy

D. age groups

Answer: C

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13. Identify the correct one from the following as we move up from lower trophic level to the higher level in ecological pyramids

A. Number increases in predatory food chain

B. Number increases in parasitic food chain

C. Energy increases in predatory food chain

D. Biomass decreases is aquatic food chain

Answer: B

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14. In an energy pyramid, the energy available at the primary carnivore level is greater than that of

A. Secondary consumers

B. Secondary carnivores

C. Herbivores

D. Primary consumers

Answer: B

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15. The upright pyramid of number is absent in :

A. Lake

B. Grassland

C. Pond

D. Forest

Answer: D

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Exercise I Plant Succession

1. An orderly sequence of community development on an area is called

A. Succession

B. Cover

C. Establishment

D. Diversity

Answer: A

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2. Succession stages that occur in salt marshes is called

A. Psammosere

B. Halosere

C. Lithosere

D. Hydrosere

Answer: B

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3. Plant succession occurring in a sandy area is

A. halosere

B. xerosere

C. lithosere

D. psammosere

Answer: D

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4. Serial changes in the previously sterile or total barren area are called

A. Climatic climax

B. Secondary succession

C. Primary succession

D. Sere

Answer: C

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5. Sucession starts on the large and bare rock is called

A. Secondary succession

B. Primary succession

C. Climax community

D. Ecological pyramid

Answer: B

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6. The Primary succession is formation of communities on a

A. Newly exposed habitat with no record of earlier vegetation

B. Pond freshly filled with water after a dry phase

C. Forest clearing after devastating fire

D. Freshly cleared crop field

Answer: A

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7. Succession is :

A. Orderly process of community change till stability

B. Gradual, convergent directional and continuous process

C. Series of biotic communities that appear gradually in a barren area

D. All of the above

Answer: D

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8. Which is not a characteristic of seral stages?

A. Simplified food chain

B. Few and generalized niches

C. Low net community productivity (NCP)

D. Low energy use efficiency

Answer: C

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9. What changes occur during ecological succession?

A. Diversity and stability increase

B. Non-living organic matter and food chains increase

C. Biomass and energy flow increase

D. All of the above

Answer: D

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10. The terminal stage of a successional process is called

A. Final stage

B. Climax stage

C. Seral stage

D. Pioneer stage

Answer: B

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11. If the pioneer stage is dominated by autotrophs, then the succession is called.

A. Allogenic

B. Autogenic

C. Autotrophic

D. Heterotrophic

Answer: C

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12. A community that is in near equillibrium with the environment during ecological sucession is

A. Trophic level

B. Food chain

C. Climax community

D. Food web

Answer: C

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13. If the vegetation of a place is burnt the first one to appear will be

A. Mosses

B. Lichens

C. Liver worts

D. Grasses

Answer: B

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14. During succession, in the successive seral stages, there is a/an :

A. Diversity of species of organisms

B. Number of species of organisms

C. Increase of total boimass

D. All the above

Answer: D

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15. In succession, complexities in structure

A. Drastically increase

B. slowly increase

C. Does not increase

D. Remain constant

Answer: B

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16. A community that starts the process of succession in a habitat is called

A. Pioneer community

B. Abiotic community

C. Biotic community

D. None of these

Answer: A

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17. The nature of climax community ultimately depends on

A. Climate

B. Soil organism

C. Bed rock

D. Pool of available nutrients

Answer: D

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18. primary succession refers to the development of communities on a :

A. Pond freshly filled with water after a dry place

B. Freshly created crop field

C. Newly exposed habitat with no record of earlier vegetation

D. Forest clearing after devastating fire

Answer: C

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19. Find out the correct order of succession levels in Xerarch:

A. Lichen moss stage, annual herb stage, perennial herb stage, shrub stage, forest

B. Annual herb stage, perennial herb stage, lichen moss stage, shrub stage, forest

C. Serennial herb stage, annual herb stage, lichen moss stage, shrub stage, forest

D. Shrub stage, forest, annual herb stage, perennial stage, lichen moss stage

Answer: A

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20. During the process of ecological succession

A. Species diversity decreases

B. Structural complexity decreases

C. Niche become specialised

D. Food chain relationship becomes simple

Answer: C

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21. Lichens and mosses are observed in

A. Hydrosere

B. Xerosere

C. Hydrarch succession

D. Psammosere

Answer: B

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22. Intermediate communities between poineer and climax communities are commonly called as

A. Plant communities

B. Biotic communities

C. Transitory communities

D. None

Answer: C

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23. When the vegetation of a region reaches climatic climax, it usually becomes

A. Hydrophytic

B. Mesophytic

C. Xerophytic

D. Lithophytic

Answer: B

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24. Minimum diversity is found in

A. Moss stage

B. Climax community

C. Pioneer community

D. Seral community

Answer: C

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25. When the succession occurs in a barren area that was not previously inhabited by plant, like sand dunes, seafloor, volcano lava sediments, it is called

A. Primary succession

B. Secondary succession

C. Allogenic

D. Ecological succession

Answer: A

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26. In ecological succession from pioneer to climax stage, the biomass shall

A. Increase continuously

B. Decrease

C. Increase and then decrease

D. No relation

Answer: A

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Exercise I Nutrient Cycling

1. Release of inorganic nutrients from humus by microbes is

A. Humification

B. Catabolism

C. Mineralization

D. Fragmentation

Answer: C

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2. Which of the following nutrient cycles have nothing do with atmosphere

A. Carbon cycle

B. Nitrogen cycle

C. Phosphorous cycle

D. Oxygen cycle

Answer: C

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3. The first step that must occur before plants can make use of nitrogen present in dead organic material is

A. Ammonification

B. Nutrification

C. Denitrification

D. None

Answer: A

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4. Pseudomonas convert

A. NH_3 to nitrates

B. Nitrates to nitrates

C. Nitrites to NH_3

D. Nitrates to atmospheric nitrogen

Answer: D

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5. Which of the following bacteria convert nitrites to nitrates

A. Pseudomonas

B. Nitrobacter

C. Nitrococcus

D. Thiobacillus

Answer: B

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6. Study the following in nitrogen cycle and identify A and B

$$NH_3 \xrightarrow{(A)} NO_2^- \xrightarrow{B} NO_3^-$$

A. A-Nitrosomonas, B-Nitrobactor

B. A-Nitrobactor, B-Nitrobactor

C. A-Nitrobactor, B-Nitrosomonas

D. A-Thiobacillus, B-Nitrobacter

Answer: A

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7. Humus decomposition retards with

A. High oxygen

B. High lignin

C. High temperature

D. High nitrogen

Answer: B

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8. Read the following statements about 'Humus', Choose the best option

(i) Humus is colloidal in nature

(ii) Easily and Quickly decomposed by microbial action

(iii) Reservoir of nutrients

(iv) Dark coloured

A. A

B. B

C. C

D. D

Answer: B

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9. Human activities have significantly influenced

A. Carbon cycle

B. Nitrogen cycle

C. Water cycle

D. Phosphorus cycle

Answer: A

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10. Which of the following is not a fossil fuel

A. Coal

B. Wood charcoal

C. Coal tar

D. Cooking gas

Answer: B

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11. Apart from carbon, hydrogen and oxygen the most prevalent element in living organisms

A. Phosphorus

B. Nitrogen

C. Calcium

D. Iron

Answer: B

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12. What is incorrect for oxygen ?

A. It is essential for all the organisms

B. Plants are included in the organisms producing it

C. Most of the metabolic energy is produced by it

D. Its proportion in water is 90%

Answer: A

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13. Pick the odd one out

A. Pseudomonas

B. Nitrosomonas

C. Nitrobacter

D. Nitrosococcus

Answer: A

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14. Major mineral constituent of cell membrane is

A. Calcium

B. Phosphorus

C. Sulphur

D. Nitrogen

Answer: B

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15. Circulation of elements in ecology is called

A. Biological chemical cycle

B. Geological cycle

C. Geochemical cycle

D. Biogeochemical cycle

Answer: D

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16. The reservoir for the gaseous type of bio-geochemical cycle exists in

A. Lithosphere

B. Hydrosphere

C. Atmosphere

D. Stratosphere

Answer: C

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17. In mineral cycle reservoir is

A. Atmosphere

B. Hydrosphere

C. Lithosphere

D. Bottom of the sea

Answer: C

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18. Out of nutrient cycles sulphur - (a) , phosphorus - (b) , carbon - (c) , and nitrogen (d) , the sedimentary cycle is/are :

A. sulphur and nitrogen

B. carbon and nitrogen

C. sulphur and carbon

D. none of these

Answer: D

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19. In phosphorus cycle phosphorus is mainly added to the cycle by

A. volcanic gases

B. decomposers

C. Weathering

D. Rain water

Answer: C

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20. Select the correct statement.

A. Nitrogen is a limiting nutrient for both natural and agricultural ecosystem

B. Nitrogen is a major component of shells

C. Nitrogen form mainly sedimentary cycle

D. Nitrogen is fixed by Pseudomonas

Answer: A

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21. Select the incorrect statement from the following

A. Nitrogen is a constituent of amino acids and nucleic acids

B. Nitrogen is a limiting nutrient in the soil

C. Nitrogen is an inert element

D. Nitrogen is a major constituent of shells and corals

Answer: C

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22. Conversion of atmospheric free nitrogen to nitrates is called

A. Nitration

B. Nitrogen fixation

C. Nitrification

D. Denitrification

Answer: B

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23. The amount of nutrients such as carbon, nitrogen, phosphorus, calcium, etc is present in the soil is called

A. Standing state

B. Standing crop

C. Soil reservoir

D. Soil richness

Answer: A

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24. Edaphic factors are related to

A. Soil

B. Water

C. Temperature

D. Salinity

Answer: A

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25. The logical sequence of nitrogen fixation in air is

A. $N_2 \rightarrow NH_3 \rightarrow NO_2 \rightarrow NO_3$

B. $NH_3 \rightarrow NO \rightarrow NO_2 \rightarrow NO_3$

C. $NO \rightarrow NO_2 \rightarrow NO_3 \rightarrow NH_3$

D. $N_2O \rightarrow NO \rightarrow NO_2 \rightarrow NO_3$

Answer: A

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26. The biogeochemical cycle that is directly driven by sunlight is

A. Nitrogen

B. Carbon

C. Phosphorus

D. All of these

Answer: B

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27. The biogeochemical cycle that is directly driven by lightening is

A. Water

B. Nitrogen

C. Carbon

D. Phosphorus

Answer: B

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Exercise I Ecosystem Services

1. One of the following is not a supporting ecosystem services

A. Nutrient cycling

B. Oxygen production

C. Soil formation

D. Climate regulation

Answer: D

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2. Ecosystem services such as education, recreation and aesthetic value comes under this category

A. Regulating services

B. Supporting services

C. Cultural services

D. Provisioning services

Answer: C

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3. Robert Constant and his colleagues have put a price tag of ..US .33 trillion a year on

A. 33

B. 50

C. 6

D. 18

Answer: A

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4. Identify the correct statement.

A. cost of soil formation account for about 10 percent.

B. food, fibre are regulating services

C. Recreation and nutrient cycling accounts for less than 10 percent

D. water purification and food production are supporting services.

Answer: C

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5. The most important pollinator for agricultural purposes is

A. Flies

B. Mosquitoes

C. Cockroaches

D. Honey bees

Answer: D

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6. Amount of CO_2 abosorbed by plant to produce 180 gm of glucose

A. 216 gm

B. 264 gms

C. 192 gm

D. 108 gms

Answer: B

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7. To produce 3gm dry organic matter the amount of CO_2 fixed is

A. 1.98 gm

B. 20 gm

C. 1.63 gm

D. 40 gm

Answer: C

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8. Natural ecosystem may have helped to stabilize climate and prevent overheating of the Earth by removing more of

A. The green house gases from atomosphere

B. CO_2 from the atmosphere

C. ground water

D. (1) and (2)

Answer: D

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9. Amount of CO_2 abosorbed by plant to produce 180 gm of glucose

A. 216 gm

B. 264 gm

C. 192 gm

D. 108 gm

Answer: B

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10. The purpose of developing a carbon tax system in many countries is to

1) reduce greeen house gases

A. reduce green house gases

B. cut down CO_2 in atmosphere

C. cut down CO in atmosphere

D. All the above

Answer: D

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11. An effective measure to prevent global warming is

A. Drip - irrigation

B. afforestation

C. to provide growth chambers

D. None

Answer: B

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12. The amount of oxygen produced by a tree depends on

A. the species of tree

B. the age of tree

C. its health

D. All the above

Answer: D

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13. "The lungs of the world" - are

A. Plants

B. Planktons

C. Human beings

D. 1 and 2

Answer: D

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14. Which of the following type of ecosystem is expected in an area where evaporation exceeds precipitation, and mean annual rainfall is below 100mm

A. Grassland

B. Shrubby forest

C. Desert

D. Mangrove

Answer: C

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15. Which of the following ecosystems is most productive in terms of net primary production?

A. Deserts

B. Tropical rain forests

C. Oceans

D. Estuaries

Answer: B

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16. Among the following, where do you think the process of decomposition would be the fastest?

A. Tropical rain forest

B. Antarctic

C. Dry arid region

D. Alpine region

Answer: A

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17. Approximately how much of the solar energy that falls on the leaves of a plant is converted to chemical energy by photosynthesis?

A. Less than 1%

B. 2-10%

C. 0.3

D. 0.5

Answer: B

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18. An inverted pyramid of biomass can be found In thch ecosystem?

A. Forest

B. Marine

C. Grass land

D. Tundra

Answer: B

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Exercise Ii Ecosystem Structure And Function

1. Important types of forests in India

A. Tropical rain forests

B. Tropical deciduous forests

C. 1 and 2

D. Sandy forests

Answer: C

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2. Important Grassland ecosystems are present in India are

A. Himalayan region

B. Western Rajasthan

C. Western ghats

D. 1 and 2

Answer: A

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3. In desert ecosystem in India rain fall per year is

A. More than 50 cm

B. More than 25 cm

C. In between 25 to 50cm

D. Less than 25 cm

Answer: D

Watch Video Solution

4. Hot type and cold type deserts located in India are, respectively

A. Ladakh, Rajasthan

B. Rajasthan, Ladakh

C. Himalayan, Eastern ghats

D. Eastern ghats, Himalayan

Answer: B

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5. Mark the odd one (w.r.t second trophic level)

A. Wolf

B. Grasshopper

C. Cow

D. Zooplanktons

Answer: A

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6. Which of the following pairs is not correct?

A. E.Haeckel-Coined the term 'Ecology'

B. Tansley-Coined the term 'Ecosystem'

C. R. Mishra-Father of Indian Ecology

D. None of these

Answer: D

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7. It- (I) Liver - Liver lobule

II. kidney- Uriniferous tubule

III. Ecolog:y - X

then what does"X" represent ?

A. Biotic community

B. Ecosystem

C. Population

D. All of the given

Answer: B

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8. If the carbon atoms fixed by producers already have passed through three species, the trophic level of the last species would be

A. scavenger

B. tertiary producers

C. tertiary consumer

D. secondary consumer

Answer: C

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9. Which one of the following is not a correct match of the term and its description?

A. Ecology-Environmental biology

B. Biosphere-The inhabited part of the earth

C. Biome-A major life zone characterized by the dominant plant life present

D. Ecological level-Organisms occupying different equivalents niches in same geographical area

Answer: D

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10. Which of the following represents largest man made ecosystem

A. Zoo

B. Garden

C. Aquarium

D. Agroecosystem

Answer: D

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11. Which one of the following is the most productive ecosystem?

A. Temperate forest

B. Grassland

C. Desert

D. Tropical rain forest

Answer: D

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12. Which of the following aspects is not a component of functional unit of ecosystem?

A. Productivity

B. Decomposition

C. Energy flow

D. Species composition

Answer: D

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13. In a comparative study of grassland ecosystem and pond ecosystem, it may be observed that

A. the abiotic components are almost similar

B. the biotic components are almost similar

C. both biotic and abiotic components are different

D. primary and secondary consumers are similar

Answer: B

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14. Ecosystem may be defined as

A. A localised association of several plants and animals

B. Different communities of plants, animals and microbes together with their physico chemical environments

C. Different communities of plants and micro besplus their physicochemical environments

D. None of these

Answer: B

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15. which is correct for ecosystem

A. Community formed by various species present in a particular region.

B. (Plants, Animals, Microorganisms) + Abiotic environment

C. Animal, plants and micro-organisms.

D. Abiotic factors

Answer: B

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16. Stratification is well developed in

A. Tropical rain forests

B. Grasslands

C. Tundras

D. Deserts

Answer: A

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17. Least productive ecosystem is

A. Grassland

B. Savannah

C. Forest

D. Tundra

Answer: D

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18. Largest ecosystem of the world are

A. Forests

B. Grass lands

C. Great lakes

D. Oceans

Answer: D

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19. Which of the following is a man made artificial ecosystem?

A. Grassland ecosystem

B. Forest ecosystem

C. Ecosystem of artificial lakes & dams

D. None of these

Answer: C

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20. A pond is a

A. Biome

B. Natural ecosystem

C. Artificial ecosystem

D. Community of plants

Answer: B

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21. What is correct for the artificial ecosystem ?

A. Ecosystem is cannot be form by human

B. Biodiversity is high

C. Biodiversity is less

D. It is more stable than natural ecosystem

Answer: C

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22. Ecosytem of still or stagnant water bodies is called

A. Pelagic

B. Benthic

C. Lentic

D. Lotic

Answer: C

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23. X is source of Y but Y never return to X, Then which option is wrong for X and Y?

A. X = plant, Y= organic compound

B. A and D are wrong

C. a & b Both are correct

D. X= sun, Y=Energy

Answer: B

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Exercise Ii Productivity

1. Primary productivity depends upon

A. light and temperature

B. water and nutrients

C. photosynthetic capacity of producers

D. all of these

Answer: D

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2. Read the following statements and select the correct option:

(a) Net primary productivity is less than the gross primary productivity

(b) Net primary productivity is equal to the gross primary productivity minus the respiration losses

A. Both (a) and (b) are true.

B. (b) is correct but (a) is false.

C. (a) is correct but (b) is false.

D. Both (a) and (b) are false.

Answer: A

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3. Arrange the following ecosystems in increasing order of their mean NPP (tons/ha/year).

(A) Tropical deciduous forest

(B) Temperate coniferous forest

(C) Tropical rainforest

(D) Temperate deciduous forest

A. $B < A < D < C$

B. $D < B < A < C$

C. $A < C < D < B$

D. $B < D < A < C$

Answer: D

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4. The annual net primary productivity of the whole biosphere is approximately

A. 150 billion tons

B. 160 billion tons

C. 170 billion tons

D. 180 billion tons

Answer: C

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5. Productivity at the second trophic level is always.

A. greater than the productivity at the first trophic level

B. less than the productivity at the first trophic level

C. equal to the productivity at the first trophic level

D. extremely variable compared to the productivity at the first trophic level

Answer: B

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6. The rate of formation of new organic matter by rabbit in a grassland, is called.

A. net productivity

B. secondary productivity

C. net primary productivity

D. gross primary productivity

Answer: B

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7. How much of the net primary productivity of a terrestrial ecosystem is eaten and digested by herbivores?

A. 1%

B. 10%

C. 40%

D. 90%

Answer: B

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8. Match Column-I with Column-II and select the correct option from the codes given below.

	Column-I		Column-II
(a)	Gross primary productivity	(i)	Green plants
(b)	Secondary productivity	(ii)	Rate of synthesis of organic matter by consumers
(c)	Transducers	(iii)	Total organic matter produced from solar energy
(d)	Food web	(iv)	Interlocking pattern

	(a)	(b)	(c)	(d)
1)	(i)	(ii)	(iii)	(iv)
2)	(iii)	(ii)	(i)	(iv)
3)	(iii)	(iv)	(i)	(ii)
4)	(ii)	(i)	(iv)	(iii)

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9. The rate of conversion of light energy into chemical energy of organic molecules in an ecosystem is

A. net primary productivity

B. gross primary productivity

C. secondary productivity

D. gross secondary productivity

Answer: B

Watch Video Solution

10. Which one of the following exhibits least productivity?

A. Salty marshes

B. Grasslands

C. Open oceans

D. Coral reefs

Answer: C

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11. Magnitude of primary productivity is affected by

A. Temperature, Availability of nutrients

B. Solar radiations available, Availability of nutrients

C. Photosynthetic capacity of producers

D. All of these

Answer: D

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12. Choose incorrect option w.r.t. amount of living material present in different trophic levels at a given time

A. Can be measured as number

B. Is equivalent to standing crop

C. Is always represented as dry weight

D. Expressed both as biomass and number

Answer: C

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13. Which one is the maximum suitable to from top of the energy pyramid?

A. Secondary consumer

B. Tertiary consumer

C. Producers

D. Primary consumer

Answer: B

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Exercise Ii Decomposition

1. which of the following is not characteristic of humus?

A. It is rich in organic matter such as lignin and cellulose.

B. It is colloidal in nature and serves as a reservoir of nutrients.

C. It is highly resistant to microbial action and undergoes slow decomposition.

D. It is further degraded by the process of humification.

Answer: D

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2. During the process of decompositon

A. CO_2 is consumed and O_2 is released

B. O_2 is consumed and CO_2 is released

C. CO_2 is consumed and H_2O is released

D. None of these

Answer: B

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3. Rate of decompositon depends upon

A. chemical composition of detritus

B. temperature

C. soil moisture and soil pH

D. all of these

Answer: D

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4. Decomposers are also called as

A. transducers

B. reducers

C. micro-consumers

D. both (2) and (3)

Answer: D

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5. Read the given statements and select the correct option. Statement 1 : Decomposition is the physical and chemical breakdown of complex organic matter into simple inorganic substances.

Statements 2: Humification is the process of formation of humus from detritus or organic remains.

A. (b) is correct but (a) is false.

B. Both (a) and (b) are true.

C. (a) is correct but (b) is false.

D. Both (a) and (b) are false.

Answer: B

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6. Decomposers like fungi and bacteria are

(i) Autotrophs (ii) Heterotrophs

Saprotrophs

(iv) Chemo-autotrophs

Choose the correct answer

A. i and iii

B. i and iv

C. ii and iii

D. i and ii

Answer: C

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7. The process of mineralisation by micro organisms helps in the release of

A. inorganic nutrients from humus

B. both organic and inorganic nutrients from detritus

C. organic nutrients from humus

D. inorganic nutrients from detritus and formation of humus.

Answer: A

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8. In an ecosystem, which of the following is unidirectional?

A. Sulphur

B. Organic nutrient

C. Carbon

D. Free energy

Answer: A

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9. If we completely remove the decomposers from an ecosystem , the ecosystem functioning will be adversely affected because :

A. Mineral movement will be blocked

B. Herbivores will not receive solar energy

C. Energy flow will be blocked

D. Rate of decomposition of other components will be very high

Answer: A

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10. Buildup of organic material in soil is under which of the following conditions to

A. $< 10^{\circ} C$ temperature, Absence of oxygen

B. Warm temperature, Humid environment

C. Aerobic condition, $> 25^{\circ} C$ temperature

D. Nitrogen rich detritus, optimum moisture

Answer: A

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11. Mineralisation is performed by

A. Small carnivores

B. Detrivores

C. Saprophytic bacteria and fungi

D. Earthworm, termites

Answer: C

Watch Video Solution

Exercise Ii Energy Flow

1. In which of the following alimentary canal,"starch glycogen" is produced ?

A. Producer

B. 1st trophic level

C. 2nd trophic level

D. All the above

Answer: B

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2. If 10 joules of energy is available at the producer level, then amount of energy present at the level of secondary consumer is

A. 10J

B. 1J

C. 0.1J

D. 0.01J

Answer: C

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3. Percentage of photosynthetically active radiation (PAR) in the incident solar radiation is

A. $1-5\%$

B. $2-10\%$

C. less than 50%

D. approx. 100%

Answer: C

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4. Percentage of photosyntetically active radiation (PAR) that is captured by plants in synthesis of organic matter is

A. 50 - 70%

B. 30 - 40%

C. 80 - 100%

D. 2 - 10%

Answer: D

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Exercise Ii Trophic Levels And Food Chains

1. The maximum energy is stored at which of the following tropical level in any ecosystem:-

A. Producers

B. Herbivores

C. Carnivores

D. Top carnivores

Answer: A

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2. Which one is omnivorous-

A. Frog

B. Lion

C. Deer

D. Man

Answer: D

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3. Which of the following trophic levels are occupied by sparrow ?

A. Primary consumer, primary producer

B. Secondary consumer, top carnivore

C. Primary producer, secondary producer

D. Primary consumer, secondary consumer

Answer: D

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4. Which of the following are called key industry animals?

A. Autotrophs

B. Decomposers

C. Herbivores

D. Top carnivores

Answer: C

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5. The number of trophic levels in a food chain is limited to 4 or 5 because

A. the amount of food produced by producer is limited

B. Consumer's demand is high

C. 90% of the food is lost as heat at each transfer between trophic levels

D. Activity of decomposer is poor

Answer: C

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6. The number of individuals in each trophic level depends upon the

A. number of individuals at higher trophic level

B. The number of individuals at the lower trophic level

C. number of food chains present

D. amount of sunlight available

Answer: B

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7. Mr. X is eating curd/yoghut. For this food intake in a food chain he should be considered as occupying

A. First trophic level

B. Second trophic level

C. Third trophic level

D. Fourth trophic level

Answer: C

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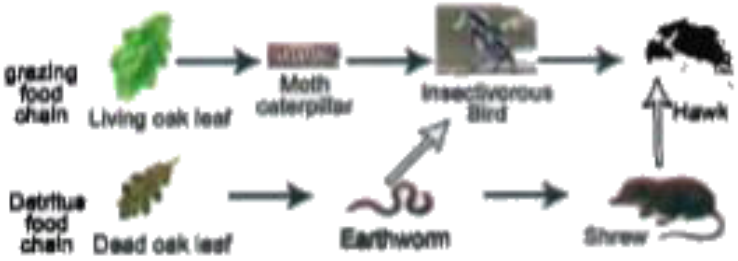
8. Given figure represents food chains of a deciduous woodland linked together to form a food web.



Which of the following constitute first trophic level of the grazing food chain and the detritus food chain respectively ?

A. Living oak leaf and dead oak leaf

B. Living oak leaf and earthworm

C. Moth caterpillar and earthworm

D. Living oak leaf in both

Answer: A

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9. Study the food web given below and answer the questions that follow.

Which of the following organisms in the given food web act both as a predator and a prey?

A. I , II and IV

B. II, III and IV

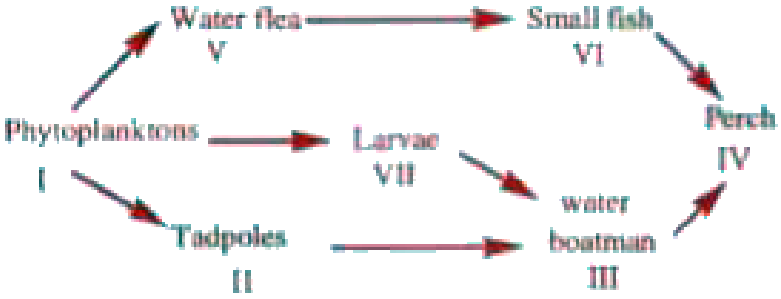
C. II, III, V , VI & VII

D. II, III and VI

Answer: C

Watch Video Solution

10. Study the food web given below and answer the questions that follow.



Which of the following organisms in the given food web acts as a secondary consumer ?

A. II and V

B. III and VI

C. VII only

D. IV only

Answer: B

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11. Read the following statements and select the correct option:

(a) Herbivores are also called as first order consumers.

(b) Herbivores obtain their food directly from plants.

A. Both (a) and (b) are true.

B. (b) is correct but (a) is false.

C. (a) is correct but (b) is false.

D. Both (a) and (b) are false.

Answer: A

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12. Choose the incorrect food chain.

A. Grass $\rightarrow$ Grasshopper $\rightarrow$ Frog $\rightarrow$ Snake $\rightarrow$ Eagle

B. Phytoplanktons $\rightarrow$ Zooplanktons $\rightarrow$ Small fish $\rightarrow$ Large fish

C. Diatoms $\rightarrow$ Zooplanktons $\rightarrow$ Small fish

D. Grass $\rightarrow$ Frog $\rightarrow$ Vulture

Answer: D

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13. Read the following statements and select the correct ones.

(i) A given species may occupy more than one trophic level in the same ecosystem at the same time.

(ii) Productivity of an aquatic ecosystem is less than that of a terrestrial ecosystem.

(iii) Producers constitute the first trophic level of a detritus food chain.

A) i and ii

B) ii and iii

C) i and iii

D) i, ii and iii

A. (i) and (ii)

B. (ii) and (iii)

C. (i) and (iii)

D. (i) , (ii) and (iii)

Answer: A

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14. Organisms which are associated with first as well as third trophic level are

A. Macrophytes

B. Phytoplanktons

C. Chemoautotrophs

D. Insectivorous plants

Answer: D

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15. In a grassland ecosystem, if the number of primary producers (plants) is approximately 6 million, the number of top carnivors. Which may be supported by them will be

A. 3

B. 30

C. 6

D. 60

Answer: A

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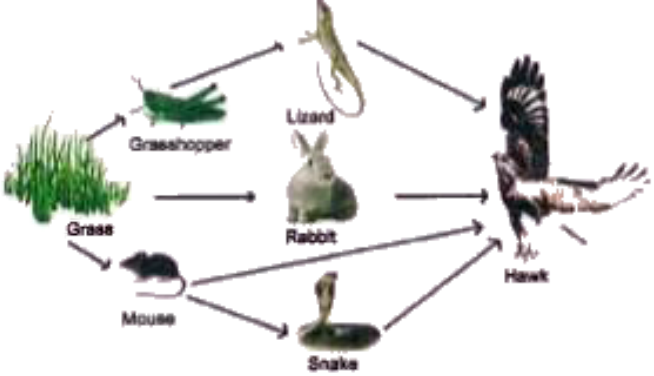
16. In the given food web, an increase in the population of hawks will not result in



A. increase in the population of rabbits and snakes

B. increase in the population of producers

C. decrease in the population of lizards

D. increase in the population of grasshoppers

Answer: C

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17. Select the option that correctly identifies A, B and C in the given table.

Organism	Trophic level	Food chain
Eagle	A	Grazing
Earthworm	Primary consumer	B
Frog	C	Grazing

	A	B	C
1)	Secondary consumer	Top carnivore	Detritus
2)	Top carnivore	Detritus	Secondary consumer
3)	Secondary consumer	Grazing	Secondary consumer
4)	Scavanger	Grazing	Producer

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18. Study the following statements concerning food chains and select the correct ones.

(i) Removal of 80% of tigers from an area resulted in greatly increased growth of vegetation.

(ii) Removal of most of the carnivores resulted in an increased population of deer.

(iii)The length of food chains is generally limited to 3-4 trophic levels due to energy loss.

(iv) The length of food chains may vary from 2 to 8 trophic levels.

A. (i) and (ii)

B. (ii) and (iii)

C. (i) and (iii)

D. (iii) and (iv)

Answer: B

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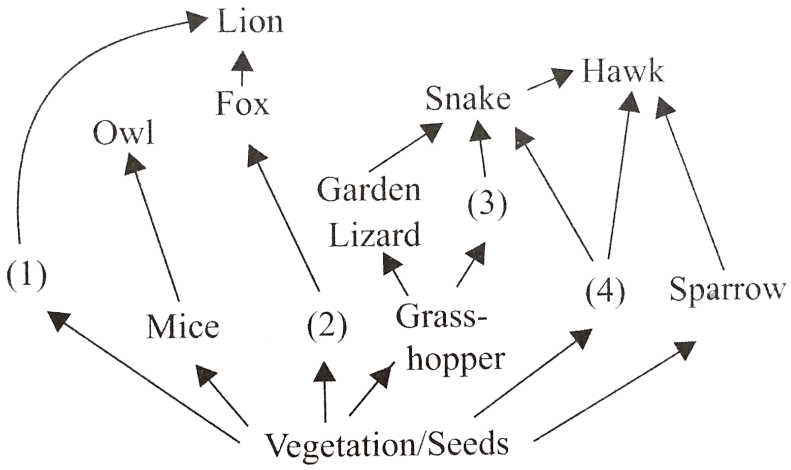
19. Given food web contains some missing organisms, 1,2,3 and 4. Identify these organisms and select the correct answer?



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20. In an aquatic ecosystem, the organism present at the trophic level equivalent to cows in grasslands is

A. phytoplankton

B. large fishes

C. sea gulls

D. zooplankton

Answer: D

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21. Animals which occupy the same trophic level

A. Tiger and bear

B. Deer and bees

C. Snake and earthworm

D. Crow and cow

Answer: B

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22. Food chains are met with only in the

A. Sea

B. Cities

C. Forests

D. In all the places

Answer: D

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23. Where there is no difference

A. T_1 and herbivores

B. primary consumers and herbivores

C. primary carnivores and T_2

D. secondary consumers and herbivores

Answer: B

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24. Trees $\rightarrow$ Birds $\rightarrow$ Lice $\rightarrow$ Bacteria Above food chain is

A. Predatory

B. Grazing

C. Detritus

D. Parasitic

Answer: D

Watch Video Solution

25. Which of the following organisms convert plant matter into animal matter ?

A. Earth worm

B. Goat

C. Beetles

D. Frog

Answer: B

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26. What kind pyramid is represented by the given figure ?

A. Pyramid of numbers in a forest ecosystem

B. Pyramid of numbers in a parasitic food chain

C. Pyramid of biomass in forest ecosystem

D. It is a wrong pyramid

Answer: C

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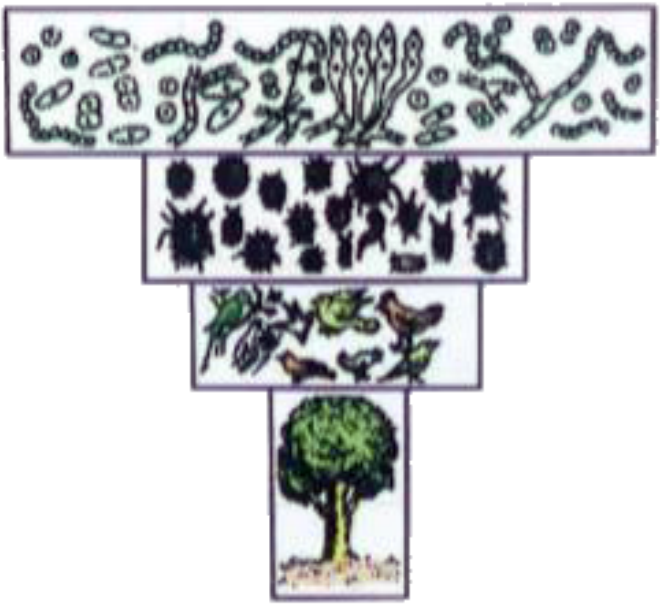
27. Which kind of the pyramid is represented by the given figure



A. Inverted pyramid of numbers

B. Inverted pyramid of biomass

C. Inverted pyramid of energy

D. Both (1) and (2)

Answer: A

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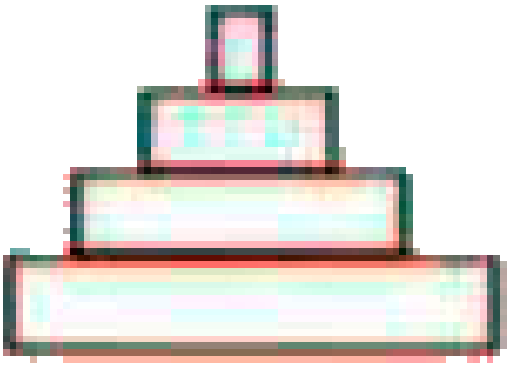
28. The given pyramid does not represents



A. pyramid of energy in forest ecosystem

B. pyramid of biomass in forest ecosystem

C. pyramid of numbers in grassland ecosystem

D. pyramid of numbers in forest ecosystem

Answer: D

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29. Read the following statements and select the correct option:

(a) In an aquatic ecosystem, pyramid of biomass is inverted.

(b)Biomass depends upon reproductive potential and longevity of individuals.

A. Both (a) and (b) are true

B. (b) is correct but (a) is false

C. (a) is correct but (b) is false

D. Both (a) and (b) are false

Answer: A

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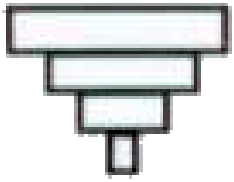
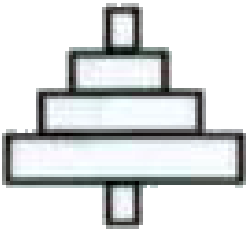
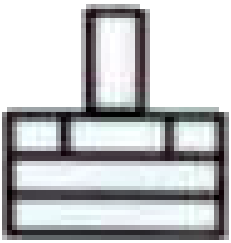
30. Which of the following acts as a primary as well a secondary consumer in the forest eco-system?

A. 

B. 

C. 

D. 

Answer: C

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31. Study the following statements and select the incorrect one.

A. Shorter food chains provide more energy as compared to longer food chains.

B. Ecological factors connected with physical geography of earth are called topographic factors

C. The pyramid of biomass is upright in a grassland ecosystem and the pyramid of numbers is upright in a parasitic food chain.

D. None of these

Answer: C

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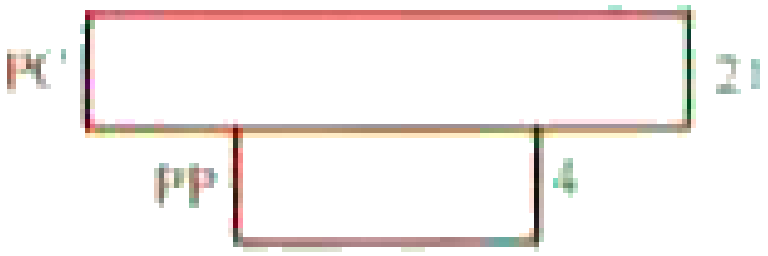
32. Which kind of pyramid is represented by the given figure?



A. Pyramid of numbers in terrestrial ecosystem

B. Pyramid of biomass in terrestrial ecosystem

C. Pyramid of biomass in aquatic ecosystem

D. Pyramid of numbers in aquatic ecosystem

Answer: C

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33. Pyramid of biomass for a grazing food chain represents

A. gradual decrease in biomass from apex to base

B. gradual decrease in biomass from producers to the tertiary consumers

C. gradual increase of the biomass from producers to the tertiary consumers

D. no change in biomass

Answer: B

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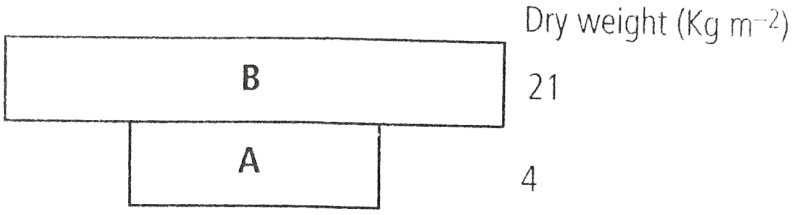
34. Given figure represents a pyramid of biomass in an aquatic ecosystem.



Identify A and B and select the correct answer.

(i) A is the crop which supporsts and B is the crop which is supported.

(ii) A is the crop which is supported and B is the crop which supports.

(iii) A is phytoplanktons and B is zooplanktons.

(iv) A is zooplanktons and B is phytoplanktons.

A. (i) and (iv)

B. (ii) and (iii)

C. (i) and (iii)

D. (ii) and (iv)

Answer: C

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35. Which of the following organisms were not given any place in ecological pyramids ?

A. Working at several trophic levels

B. Decomposers

C. Parasites

D. More than one option is correct

Answer: D

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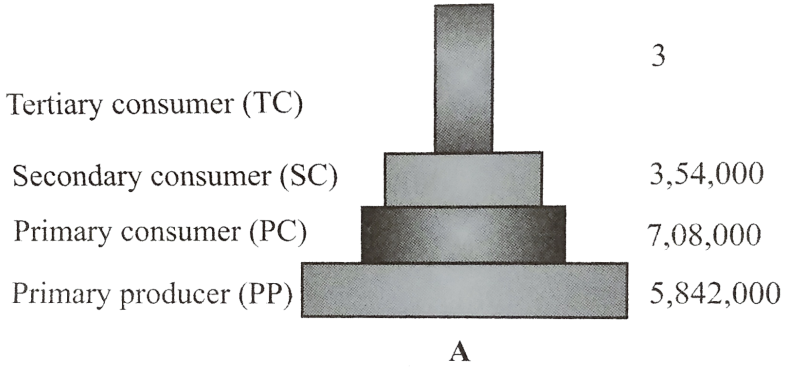
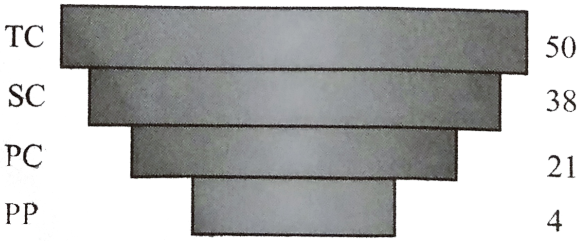
36. Study the following ecological pyramids carefully.



A

B



C

Mathc the following statements I,ii and iii with gien pyramidsa, B and C and select the correct answer.

(i) Inverted pyramid of biomass depicting small standing crop of phytoplanktons supporintg a large standing crop of zooplanktons

(ii) Pyramid of numbers in a grassland ecosytems showing about 6 milion producers.

(iii) Upright pyramid of biomass

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37. Study the following statements and select the incorrect ones.

(i) Pyramids of energy and yearly biomass production can never be inverted, since this would violate the laws of thermodynamics.

(ii) Pyramids of standing crop and numbers can be inverted, since the number of organisms at a time does not indicate the amount of energy flowing through the system.

(iii) There are certain limitations of ecological pyramids such as they do not take into account the same species belonging to two or more trophic levels.

(iv) Saprohytes are not given any place in ecological pyramids even though they play a vital role in the ecosystem.

A. (i) and (iii)

B. (iii) and (iv)

C. (ii) and (iii)

D. none of these

Answer: D

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38. Which statement is correct?

A. Plant uses CO_2 during respiration

B. In all CO_2 acceptor plants, organic compounds are produce through photosynthesis

C. Biomass of the plant is available to only herbivores

D. All three

Answer: B

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Exercise Ii Plant Succession

1. Arrange the following seral stages in correct sequence with regards to primarysuccession in water

A. Phytoplanktons $\rightarrow$ Marsh meadow stage $\rightarrow$ Reed swamp Stage $\rightarrow$ Scrub stage $\rightarrow$ Forest

B. Reed swamp stage $\rightarrow$ Phytoplanktons $\rightarrow$ Marsh meadow stage $\rightarrow$ Forest $\rightarrow$ Scrub stage

C. Phytoplanktons $\rightarrow$ Marsh meadow stage $\rightarrow$ Forest $\rightarrow$ Scrub stage.

D. Phytoplanktons $\rightarrow$ Submerged plant stage $\rightarrow$ Free floating stage $\rightarrow$ Reed swamp stage $\rightarrow$ Marsh meadow stage $\rightarrow$ Scrub stage $\rightarrow$ Forest

Answer: D

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2. During the process of ecological succession the changes that take place in communities are

A. orderly and sequential

B. random

C. very quick

D. not influenced by the physical environment

Answer: A

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3. Climax community is in a state of

A. non-equilibrium

B. equilibrium

C. disorder

D. constant change

Answer: B

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4. Choose the incorrect statement.

A. All successions takes place in water orland proceeds to a similar climax community i.e mesic

B. When compared to primary succession, secondary succession occurs very fastly to reach climax

C. Mesic condition is either too dry or too wet

D. In primary succession on rocks the pioneer species are the lichens

Answer: C

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5. Match Column-I with Column-II and select the correct option from the codes given below.

Column-I	Column-II
(a) Bacteria	(i) Prisere
(b) Green plants	(ii) Transducers
(c) Primary succession	(iii) Lithosere
(d) Succession on bare rock	(iv) Micro-consumers
	(v) Subsere

	(a)	(b)	(c)	(d)
1)	(iv)	(ii)	(i)	(iii)
2)	(iv)	(iii)	(i)	(ii)
3)	(i)	(iii)	(ii)	(iv)
4)	(iv)	(ii)	(iii)	(i)

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6. Species that invade an area in secondary succession depend on

A. Condition of soil

B. Availability of water

C. Seeds/propafules present in the soil

D. All the above

Answer: D

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7. primary succession refers to the development of communities on a :

A. area destroyed due to forest fire

B. newly formed river delta

C. harvested crop field

D. all of these

Answer: B

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8. Successions that occur on soils or areas which have recently lost their community are referred to as

A. primary successions

B. secondary successions

C. lithoseres

D. priseres

Answer: B

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9. In lithosere, foliose lichens make the conditions favourable for the growth of

A. crustose lichens

B. mosses

C. annual grasses

D. perennial grasses

Answer: B

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10. Select the correct sequence of succession in a pond.

1) Submerged plants $\rightarrow$ Floating plants $\rightarrow$ Reed swamp stage $\rightarrow$ Sedges

2) Floating plants $\rightarrow$ Submerged plants $\rightarrow$ redd swamp stage $\rightarrow$ Sedges

3) Reed swamp stage $\rightarrow$ Sedges $\rightarrow$ Floating plants $\rightarrow$ Submerged plants

4) Sedges $\rightarrow$ Reed swamp stage $\rightarrow$ Floating plants $\rightarrow$ Submerged plants

A. Submerged plants $\rightarrow$ Floating plants $\rightarrow$ Reed swamp stage $\rightarrow$ Sedges

B. Floating plants → Submerged plants → Reed swamp stage → Sedges

C. Reed swamp stage → Sedges → Floating plants → Submerged plants

D. Sedges → Reed swamp stage → Floating plants → Submerged plants

Answer: A

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11. Correct sequence of stages of succession on a bare rock is:

1) Lichens → Mosses → Grasses → Shrubs → Trees

2) Trees → Shrubs → Lichens → Mosses → Grasses

3) Mosses → Shrubs → Trees → Lichens → Grasses

4) Mosses → Lichens → Grasses → Shrubs → Trees.

A. Lichens → Mosses → Grasses → Shrubs → Trees

B. Trees → Shrubs → Lichens → Mosses → Grasses

C. Mosses → Shrubs → Trees → Lichens `to Grasses

D. Mosses → Lichens → Grasses → Shrubs → Trees

Answer: A

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12. Match Column-I with Column-II and select the correct option from the codes given below.

	Column-I		Column-II
(a)	presence of 3-4 storeyed plant crowns in a forest	(i)	Blue green algae
(b)	A biome having grasses with scattered trees	(ii)	Stratification
(c)	Man made ecosystem	(iii)	Savannah
(d)	Pioneer in hydrosere	(iv)	Dam

	(a)	(b)	(c)	(d)
1)	(ii)	(iii)	(iv)	(i)
2)	(ii)	(iii)	(i)	(iv)
3)	(i)	(iii)	(iv)	(ii)
4)	(iii)	(iv)	(ii)	(i)

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13. Read the given statements and select the correct option:

Statement 1: Pioneer community is the stable and final biotic community of an ecological succession.

Statement 2 : Pioneer community has maximum diversity and niche specialisation.

A. (b) is correct but (a) is false

B. Both (a) and (b) are true.

C. (a) is correct but (b) is false.

D. Both (a) and (b) are false.

Answer: A

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14. Correct sequence of stages of succession on a bare rock is:

1) Lichens → Mosses → Grasses → Shrubs → Trees

2) Trees → Shrubs → Lichens → Mosses → Grasses

3) Mosses → Shrubs → Trees → Lichens → Grasses

4) Mosses → Lichens → Grasses → Shrubs → Trees.

A. Foliose lichens → Crustose lichens → Mosses → Annual grasses → Perennial grasses → Shrubs → Trees

B. Crustose lichens $\rightarrow$ Foliose lichens $\rightarrow$ Mosses $\rightarrow$ Perennial grasses $\rightarrow$ Annual grasses $\rightarrow$ Shrubs $\rightarrow$ Trees

C. Crustose lichens $\rightarrow$ Foliose lichens $\rightarrow$ Mosses $\rightarrow$ Annual grasses $\rightarrow$ Perennial grasses $\rightarrow$ Shrubs $\rightarrow$ Trees

D. Crustose lichens $\rightarrow$ Foliose lichens $\rightarrow$ Mosses $\rightarrow$ Annual grasses $\rightarrow$ Shrubs $\rightarrow$ Perennial grasses $\rightarrow$ Shrubs $\rightarrow$ Perennial grasses $\rightarrow$ Trees

Answer: C

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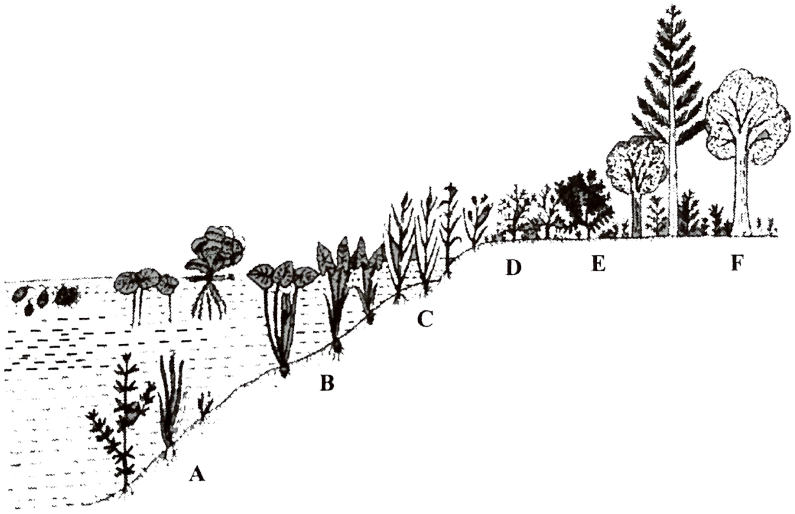
15. In the given figure A,B,C,D,E and F represent some stages of hydrosere, Select the correct statement regarding these.



A. Hydrilla and Potamogeton occur in stage A, Nymphaea and Pistia occur in stage B

B. Phragmites and Typha occur in stage C, Carex and Cyperus occur in stage D

C. Salix and Populus occur in stage E, Acer and Quercus occur in stage F.

D. All of these

Answer: D

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16. An ecosystem which can be easily damaged but can recover after some time if damaging effect stops will be having

A. low stability and high resilience

B. high stability and low resilience

C. low stability and low resilience

D. high stability and high resilience

Answer: A

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17. Match the following columns

Column-I	Column-II
A) Golden rice	i) Armyworm
B) Bt Toxin	ii) Rich in vitamin A
C) RNAi	iii) Cry protein
D) Lepidopterans	iv) Gene silencing

A. B

B. D

C. A

D. E

Answer: A

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18. The correct sequence of plants in a hydrosere is

A. Volvox $\rightarrow$ Hydrilla $\rightarrow$ Pistia $\rightarrow$ Scirpus $\rightarrow$ Carex $\rightarrow$ Quercus

B. Pistia $\rightarrow$ Volvox $\rightarrow$ Scirpus $\rightarrow$ Hydrilla Quercus $\rightarrow$ Carex

C. Quercus $\rightarrow$ Carex $\rightarrow$ Volvox $\rightarrow$ Hydrilla $\rightarrow$ Pistia - Scirpus

D. Quercus $\rightarrow$ Carex $\rightarrow$ Scirpus $\rightarrow$ Pistia $\rightarrow$ Hydrilla $\rightarrow$ Volvox

Answer: A

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19. The second stage of hydrosere is occupied by plants like:

A. Azolla

B. Typha

C. Carex

D. Vallisneria

Answer: D

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20. Which one of the following statements is correct for secondary succession?

A. It begins on a bare rock

B. It occurs on a deforested site

C. It follows primary succession

D. It is similar to primary succession except that primary succession has a relatively fast place

Answer: B

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21. Given below are some of the stages of the hydrarch.

(A) March-meadow stage

(B) Reed-swamp stage

(C) submerged plant stage (D) Phyotplankton stage

Select the option that represents the correct sequence of these stages.

A. D, C, E, B and A

B. C, E, A, B and D

C. B, D, C, A and E

D. D, E, C, B and A

Answer: A

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22. Which of the following is considered as pioneer community is xerarch?

A. Annual herbs

B. Perennial herbs

C. Shrubs

D. Lichens

Answer: D

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23. Match Column-I with Column-II and select the correct option from the codes given below.

	Column-I		Column-II
(a)	Pioneers	(i)	Vegetation which modifies its own environment and thus causing its own replacement
(b)	Autogenic succession	(ii)	Replacement of existing community by external conditions
(c)	Allogenic succession	(iii)	Establishment of organisms in an area into which they have come by dispersal or migration
(d)	Ecesis	(iv)	Primary colonisers

	(a)	(b)	(c)	(d)
1)	(iv)	(i)	(ii)	(iii)
2)	(i)	(ii)	(iii)	(iv)
3)	(ii)	(i)	(iv)	(iii)
4)	(i)	(iv)	(iii)	(ii)

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24. Match Column-I with Column-II and select the correct option from the codes given below.

	Column-I		Column-II
(a)	*Artemisia tridentata*	(i)	Grows better in overgrazed area
(b)	*Capparis spinosa*	(ii)	Dominate in areas destructed by fires
(c)	*Pteris aquilina and Pyronema*	(iii)	Indicates intense soil erosion
(d)	*Amaranthus* and *Chenopodium*	(iv)	Saline soils

	(a)	(b)	(c)	(d)
1)	(i)	(ii)	(iii)	(iv)
2)	(ii)	(iii)	(iv)	(i)
3)	(iii)	(i)	(ii)	(iv)
4)	(iv)	(iii)	(ii)	(i)

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25. Biotic succession is caused by

A. Competition amongst species

B. Occurrence of diseases

C. Changes in grazing habits

D. Adaptive ability to environmental changes

Answer: D

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Exercise Ii Nutrient Cycling

1. Read the following statements and select the correct option:

(a) Major reservoirs of phosphorus are phosphate rocks and fossil bone deposits laid down in the past geological ages.

(b) During weathering of rocks, minute amounts of these phosphates dissolve in soil solution and are absorbed by the roots of the plants.

A. (b) is correct but (a) is false.

B. Both (a) and (b) are true

C. is correct but (b) is false.

D. Both (a) and (b) are false.

Answer: B

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2. Select the pairs of sediamentary biogeochemical cycles.

I. Hydrogen cycle and water cycle

II. Phosphorus cycle and sulphur cycle

III. Calcium cycle and magnesium cycle

IV. Carbon cycle and nitrogen cycle

A. I and II

B. II and III

C. III and IV

D. I and IV

Answer: B

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3. Identify the given animal

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4. Which of the following statements is/are correct or incorrect regarding Class Amphibia?

(i) Body is divisible inot head and trunk. Tail is present in some

amphibians.

(ii) Show respiration by gills, lungs and through skin.

(iii) Has scales in all its members.

(iv) Can lead dual life (aquatic and terrestrial)

(v) Has eyelids.

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5. Which one of the following is not one of the three aspects studied in biogeochemical cycling?

A. The nature and size of natural reservoir

B. The rate of movement between reservoirs

C. How different biogeochemical cycles interact

D. How new species create their own biogeochemical cycles

Answer: D

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6. About 70% of total global carbon is found in :

A. oceans

B. forests

C. grasslands

D. agroecosystems

Answer: A

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7. Which one of the following is not a gaseous biogeochemical cycle in ecosystem?

A. Sulphur cycle

B. Phosphorus cycle

C. Nitrogen cycle

D. Carbon cycle

Answer: B

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8. Major source of sulphur is

A. oceans

B. land

C. rocks

D. lakes

Answer: C

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9. Assertion: Global water cycle does not involve the living organisms.

Reason: In global water cycle. Water circulates between hydrosphere and atmosphere.

A. Both (a) and (b) are true.

B. (b) is correct but (a) is false.

C. (a) is correct but (b) is false.

D. Both (a) and (b) are false.

Answer: A

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10. Which of the following is most important in water cycle?

A. Transpiration through leaves

B. Evaporation from the oceans

C. Percolation of water into the ground

D. Absorption of capillary water by plants

Answer: B

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11. Reservoir of gaseous cycle is

A. stratosphere

B. atmosphere

C. ionosphere

D. lithosphere

Answer: B

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Exercise Ii Ecosystem Services

1. Cultural services are

A. Conservation of plant biodiversity

B. Creation of aesthetic beauty

C. Regulation of climate

D. 1 & 2

Answer: D

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2. Out of the total proposed cost of various ecosystem services, cost of climate regulations and habitat for widilife are

A. $50\ \%$

B. $10\ \%$

C. $6\ \%$

D. $25\ \%$

Answer: C

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3. What is the amount of average price tag on nature's life support services determined by Robert Constanza and his colegues?

A. US $ 3 trillion a year

B. US $ 13 trillion a year

C. US $ 23 trillion a year

D. US $ 33 trillion a year

Answer: D

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4. An effective measure to prevent global warming is

A. Carbon tax system

B. Emission of green house gases

C. Afforestation

D. cut down O_2 and CO in atmosphere

Answer: C

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5. Find the correct statements from the following

I) Supporting ecological services - Oxygen release into ecosystem

II) Provisioning ecological services - Climate regulation in ecosystem

III) Regulating ecological services - water purification and flood protection

IV) Cultural services - Education, recreation and aesthetic value

A. Except I all are correct

B. Except II all are correct

C. Except III all are correct

D. Except IV all are correct

Answer: B

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6. The amount of CO_2 fixed by a plant, in order to produce 162g of dry organic matter is

A. 264g

B. 193 g

C. 162 g

D. 108 g

Answer: A

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7. According to photosynthesis equation, how much solar energy consume when a plant to produce 180g glucose and 193g O_2

A. 67.72 kcal

B. 677.2 calories

C. 677.2 kcal

D. 686 calories

Answer: C

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8. Water purification and water come under these ecosystem services respectively

A. Supporting, provisioning

B. Regulating, provisioning

C. Provisioning, regulating

D. Regulating, supporting

Answer: B

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9. Economically useful products of the following plants are under provisioning services

A) Rice B) Jute

C) Jute D) Pongamia

E) Petunia F) Lichens

A. All the above

B. A,B,C,D only

C. A,C only

D. F only

Answer: B

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10. Analyse the following lists about Ecological services choose correct matching

LIST-I	LIST-II
I) Supporting services	A) Water purification
II) Cultural services	B) Aesthetic value
III)Provisioning services	C) Providing fuel
IV)Regulating service	D) Soil formation
	E) flood protections

A. I-B, II-A, III-E, IV-D

B. I-A, II-B, III-D, IV-E

C. I-D, II-B, III-C, IV-A

D. I-D, II-A, III-E, IV-B

Answer: C

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11. Which of the following is an ecosystem service provided by a natural ecosystem?

A. Cycling of nutrients

B. Prevention of soil erosion

C. Pollutant absorption and reduction of the threat of global warming

D. All of the above

Answer: D

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Exercise Iii Previous Aipmt Neet Questions

1. The sequential events from stage till climax stage in succession are called

A. Ecesis

B. Sere

C. Nudation

D. Migration

Answer: B

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2. Which of the following statements is not true ?

A. A single organism can feed at several trophic levels

B. Detritivores feed at all trophic levels except the producer level

C. Primary consumers are herbivores

D. Energy pyramids of an ecosystem tend to diminish at higher trophic levels

Answer: B

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3. The primary producers of the deep-sea hydrothermal vent ecosytem are

A. Blue-green algae

B. Coral reefs

C. Green algae

D. Chemosynthetic bacteria

Answer: D

Watch Video Solution

4. Which of the following would appear as the pioneer organisms on bare rocks?

A. Lichens

B. Liverworts

C. Mosses

D. Green algae

Answer: A

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5. Which of the following is a characteristic fea- ture of cropland ecosystem

A. Absence of soil organisms

B. Least genetic diversity

C. Absence of weeds

D. Ecological succession

Answer: B

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6. The term ecosystem was coined by

A. E.P. Odum

B. A.G. Tansley

C. E. Haeckel

D. E. Warming

Answer: B

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7. Most animals that live in deep oceanic wa- ters are

A. Detritivores

B. Primary consumers

C. Secondary consumers

D. Tertiary consumers

Answer: A

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8. An association of individuals of different species living in the same habitat and having functional intersections is

A. Population

B. Ecological niche

C. Biotic community

D. Ecosystem

Answer: B

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9. Increase in concentration of the toxicant at successive trophic levels is known as

A. Biogeochemical cycling

B. Biomagnification

C. Biodeterioration

D. Biotransformation

Answer: B

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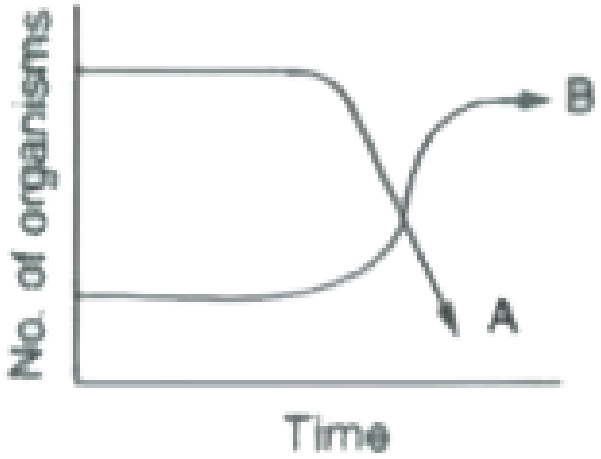
10. The following graph depicts changes in two populations A and B of herbivores in a grassy field. A possible reason for these changes is that



A. Popuation A consumed the members of population B

B. Both plant population in this habitat decreased

C. Population B competed more successfully for food than population A

D. Population A produced more offspring than population B

Answer: C

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11. Secondary Succession take splace on / in :

A. Newly cooled lava

B. Bare rock

C. Degraded forest

D. Newly created pond

Answer: C

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12. In an ecosystem the rate of production of or- ganic matter during photosynthesis is termed as

A. Net productivity

B. Net primary productivity

C. Gross primary productivity

D. Secondary productivity

Answer: C

Watch Video Solution

13. The mass of living material at a trophic level at a particular time is called

A. Standing crop

B. Gross primary productivity

C. Standing state

D. Net primary productivity

Answer: A

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14. Vertical distribution of different species occupying different levels in a biotic community is known as

A. Pyramid

B. Divergence

C. Stratification

D. Zonation

Answer: C

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15. Rachel Carson's famous book "Silent Spring" is related to

A. Ecosystem management

B. Pesticide pollution

C. Noise pollution

D. Population explosion

Answer: B

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16. Match the following and select the correct option

(a) Earthworm	(i) Pioneer species
(b) Succession	(ii) Detritivore
(c) Ecosystem service	(iii) Natality
(d) Population growth	(iv) Pollination

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17. Secondary productivity is rate of formation of new organic matter by :

A. Producer

B. Parasite

C. Consumer

D. Decomposer

Answer: C

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18. Which one of the following processes during decomposition is correctly described?

A. Fragmentation-Carried out by organism such as earthworm

B. Humification -Leads to the accumulation of a dark coloured substance humus which undergoes microbial action at a very fast rate

C. Catabolism-Last step in the decomposition under fully anaerobic condition

D. Leaching-Water soluble inorganic nutrients rise to the top layers of soil

Answer: A

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19. Natural reservoir of phosphorus is

A. Sea water

B. Animal bones

C. Rock

D. Fossils

Answer: C

Watch Video Solution

20. Which one of the following is not a gaseous biogeochemical cycle in ecosystem?

A. Nitrogen Cycle

B. Carbon Cycle

C. Sulphur Cycle

D. Phosphorus Cycle

Answer: D

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21. Pheretima and its close relatives derive nourishment from

A. Soil insects

B. Small pieces of fresh fallen leaves of maiz, etc.

C. Sugarcane roots

D. Decaying fallen leaves and soil organic matter

Answer: D

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22. Identify the possible link "A" in the following food chain

Plant $\rightarrow$ insect frog $\rightarrow$ "A" $\rightarrow$ Eagle

A. Cobra

B. Parrot

C. Rabbit

D. Wolf

Answer: A

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23. The upright pyramid of number is absent in :

A. Lake

B. Grassland

C. Pond

D. Forest

Answer: D

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24. Which one of the following is not a functional unit of an ecosystem

A. Productivity

B. Stratification

C. Energy flow

D. Decomposition

Answer: B

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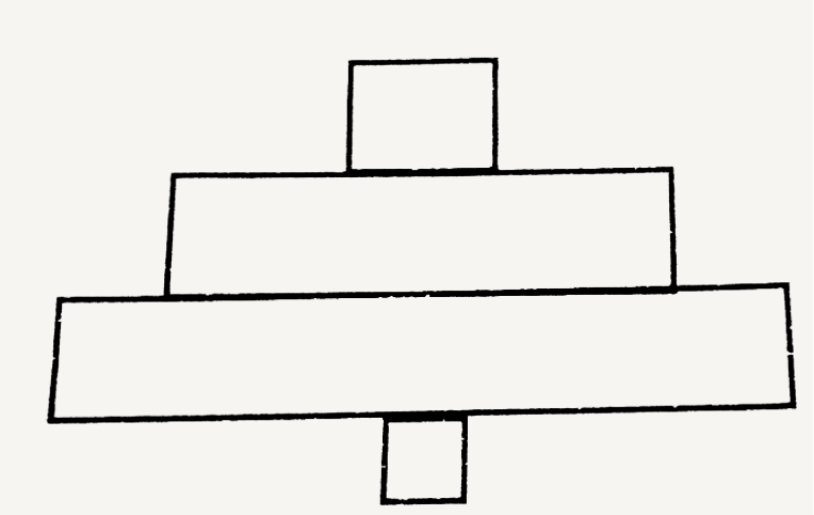
25. Given below is an imaginary pyramid of numbers. What could be one of the possibilities about certain organisms at some of the different levels?



A. Level one PP is "pipal trees" and the level SC is "sheep"

B. Level PC is "rats" and level SC is "cats"

C. Level PC is "insects" and level SC is "small insectivorous birds"

D. Level PP is phytoplanktons: in sea and "Whale" on top level TC

Answer: C

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26. Which one of the following statements for pyramid of energy is incorrect, whereas the remaining three are correct?

A. It is upright in shape

B. Its base is broad

C. It shows energy content of different trophic level organisms

D. It is inverted in shape

Answer: D

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27. The mass of living material at a trophic level at a particular time is called

A. Standing state

B. Standing crop

C. Detritus

D. Humus

Answer: B

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28. Study the four statements given below and select the two correct ones out of them.

(i) A lion eating a deer and a sparrow feeding on grain ar ecologically similar in being consumers.

(ii) Predator star fish Pisaster helps in maintainting species diversity of some invertebrates .

(iii) Predators ultimately lead to the extinction of praey species.

(iv) Production of chemicals such as nicotine, strychnine by the palnts are metablic disorders.

A. a and d

B. a and b

C. b and c

D. c and d

Answer: B

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29. The biomass available for consumption by the herbivores and the decomposers is called

A. Net primary productivity

B. Secondary productivity

C. Standing crop

D. Gross primary productivity

Answer: A

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30. Which one of the following types of organisms occupy more than one trophic level in a pond ecosystem?

A. Frog

B. Phytoplankton

C. Fish

D. Zooplankton

Answer: C

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31. The correct sequence of plants in a hydrosere is

A. Oak $\rightarrow$ Lantana $\rightarrow$ Volvox $\rightarrow$ Hydrilla $\rightarrow$ Pistia $\rightarrow$ Scirpus

B. Oak $\rightarrow$ Lantana tp Scirpus $\rightarrow$ Pistia $\rightarrow$ Hydrilla $\rightarrow$ Volvox

C. Volvox $\rightarrow$ Hydrilla $\rightarrow$ Pistia $\rightarrow$ Scirpus $\rightarrow$ Lantana $\rightarrow$ Oak

D. Pistia $\rightarrow$ Volvox $\rightarrow$ Scirpus $\rightarrow$ Hydrilla $\rightarrow$ Oak $\rightarrow$ Lantana

Answer: C

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32. Study the following statements regarding food chains and select the correct ones.

(i) Removal of 80% tigers from an area resulted in greatly increased growth of vegetation.

(ii) Removal of most of the carnivores resulted in an increased population of deers.

(iii) The lenght of food chains is generally limited to 3-4 trophic levels due

to energy loss.

(iv) The lenght of food chains may vary from 2 to 8 trophic levels.

A) i and ii B) ii and iii C) i and iii D) iii and iv

A. (i), (iv)

B. (i), (ii)

C. (ii), (iii)

D. (iii), (iv)

Answer: C

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33. The slow rate of decomposition of fallen logs in nature is due to their

A. anaerobic environment around them

B. low cellulose content

C. low moisture content

D. poor nitrogen content

Answer: B

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34. About 70% of total global carbon is found in :

A. Oceans

B. Forests

C. Grasslands

D. Agroecosystems

Answer: A

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35. A lake near a village suffered heavy mortality of fishes within a few days Consider the following reasons for this?

(a) Lots of urea and phosphate fertilizers were used in the crops in the vicinity.

(b) The area was sprayed with DDT by an aircraft.

(c) The lake water turned green and stinky.

(d) Phytoplankton population in the lake declined initially thereby greatly reducing photosynthesis. Which two of the above were the main causes of fish mortality in the lake?

A. (i), (iii)

B. (i), (ii)

C. (ii), (iii)

D. (iii), (iv)

Answer: A

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36. Which one of the following ecosystem ecosystem types has the highest annual net primary productivity?

A. Temperature deciduous forest

B. Tropical rain forest

C. Tropical deciduous forest

D. Temperature evergreen forest

Answer: B

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37. Which one of the following is not used for construction of ecological pyramids ?

A. Dry weight

B. Number of individuals

C. Rate of energy flow

D. Fresh weight

Answer: D

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