



# BIOLOGY

## BOOKS - CHETANA PUBLICATION

### Ecosystems and Energy flow

#### Example

1. What is environmental biology?



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**2. Define the following:**

Habitat



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**3. What is ecology?**



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**4. Given scientific reasons:**

The flow of energy in the ecosystem is

unidirectional.



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5. Who coined the term, ecosystem?



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6. What can be considered as on global environment?



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7. Enlist the importance of ecology for humans.



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8. Enlist the basic categories of earth ecosystem.



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**9.** Which are the different types of ecosystems?



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**10.** Classify the following examples into natural and artificial ecosystems.



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**11.** Describe various components of the ecosystem.



**Watch Video Solution**

**12.** Name the four functional processes of an ecosystem.



**Watch Video Solution**

**13.** What is spatial pattern?



**Watch Video Solution**

**14. What is spatial pattern?**



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**15. What is Stratification? Give examples.**



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**16. What is Zonation? Give examples.**



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**17.** Why is zonation more pronounced at the edges of habitat?



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**18.** Write a note on zonation in wetlands.



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**19.** Give an account of stratification in forests.



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**20.** Give the stratification of animals in Amazon rain forest.



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**21.** Define ecosystem and describe its structure and function.



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**22.** Answer the following question

Explain the concept of electrostatic potential (electric potential)?



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**23.** Pond is an ecosystem. Explain.



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**24.** Name the four functional processes of an ecosystem.



**Watch Video Solution**

**25.** What are autotrophs? Give examples.



**Watch Video Solution**

**26.** What are heterotrophs? Give examples.



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27. What is productivity?



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28. What is primary productivity?



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29. Name the two types of primary productivity.





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**30. Define Gross Primary Productivity.**



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**31. Define Net Primary Productivity.**



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**32. What is secondary productivity?**





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**33.** All primary productivity is not available to a herbivore. Give reason.



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**34.** What is the annual Net Primary Productivity of whole biosphere?



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**35.** How much surface area is occupied by ocean?



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**36.** What is Primary Productivity in ocean?



**Watch Video Solution**

**37.** Which mineral acts as limiting factor for productivity in an aquatic ecosystem?



**Watch Video Solution**

**38.** Differentiate between GPP and NPP.



**Watch Video Solution**

**39.** What could be the reason for the low productivity of ocean?



**Watch Video Solution**



**40.** Differentiate between Primary Productivity and Second Productivity.



**Watch Video Solution**

**41.** What is productivity?



**Watch Video Solution**

**42.** What is primary productivity? Give brief description of factors that affect primary

productivity.



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**43.** What is decomposition?



[Watch Video Solution](#)

**44.** Name the raw material for decomposition.



[Watch Video Solution](#)

**45.** What is detritus?



**Watch Video Solution**

**46.** What are detritivores? Give example.



**Watch Video Solution**

**47.** Define Humification.



**Watch Video Solution**

**48.** Earthworms are known as friend of farmer.

Justify.



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**49.** What is humus? List the importance of humus



**Watch Video Solution**

**50.** Explain the factors influencing decomposition.



**Watch Video Solution**

**51.** Define decomposition and describe the processes and products of decomposition.



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**52.** Write a short note on key.



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**53.** What is the ultimate source of energy for all ecosystems on the earth except for the deep sea ecosystem?



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**54.** Give full form of PAR.



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**55.** What is the % of solar radiation that is Photosynthetically Active Radiation?



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**56.** What is the % of the PAR that is captured by plants to prepare food?



**Watch Video Solution**

**57.** In which direction, flow of energy takes place in an ecosystem?



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**58.** What is a food chain?



**Watch Video Solution**

**59.** Enlist the types of food chains.



**Watch Video Solution**



**60.** What is the starting point of grazing food chain?



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**61.** What is the starting point of detritus food chain?



**Watch Video Solution**

**62.** What is food web?



**Watch Video Solution**

**63.** What could be the connecting points between the GFC and DFC?



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**64.** How will you classify man as carnivore or omnivore? Why?



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**65.** Define trophic level.



[Watch Video Solution](#)

**66.** How many trophic levels human beings function in a food chain?



[Watch Video Solution](#)

**67.** State 10% Law.



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**68.** What is the maximum number of trophic levels in a food chain?



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**69.** Is there any presence of living organisms in the perpetual darkness of deep oceanic

trenches?



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**70.** In absence of solar radiation, What is source of energy for deep ocean life?



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**71.** Which organisms serve as producers in the food chains of deep oceans?



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**72.** Write a note on producers.



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**73.** Write a note on consumers.



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**74.** Explain Grazing food chain.



**Watch Video Solution**

**75.** Explain Detritus food chain.



**Watch Video Solution**

**76.** Differentiate between Grazing food chain and Detritus food chain.



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**77.** What is the difference between food chain and food web?



**Watch Video Solution**

**78.** Food chains do not exist in isolation. Give reasons.



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79. Classify the following organisms given below as per column 'A' and complete column 'B'.

[(1) Fish (2) Snake (3) Frog (4) Marshy Plants (5) Eagle (6) Snail (7) Insects (8) Algae (9) Rat (10) Birds (11) Man (12) Grass] (2 marks)

'A'	'B'
(1) Quaternary consumer	
(2) Tertiary consumer	
(3) Secondary consumer	
(4) Primary consumer	
(5) Producer consumer	



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**80.** Match the pairs and rewrite.

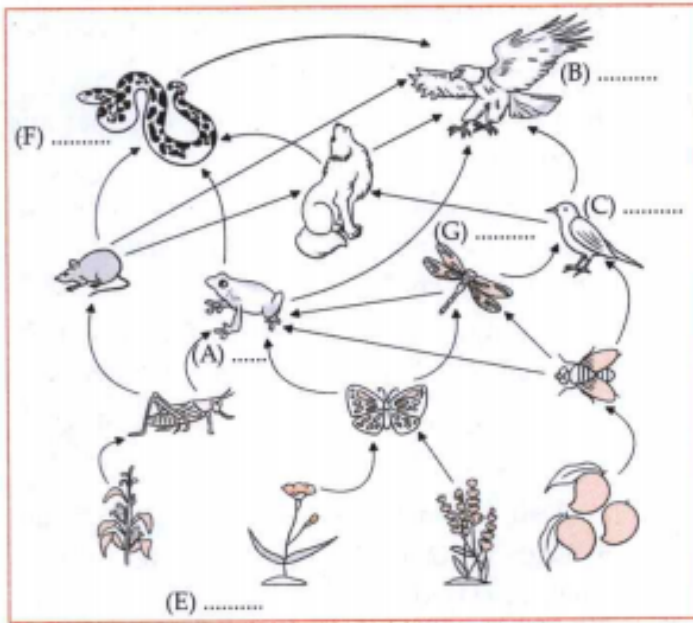
Group " I "		Group " II "	
(i)	Photo autotrophs	(a)	Cow
(ii)	Herbivores	(b)	Grass
(iii)	Carnivores	(c)	Man
(iv)	Top carnivores	(d)	Fish



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**81.** Complete the food web by using following organisms given below. Frog, eagle, lizard,

insect, flowering plant, snake, birds.



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82. Describe different trophic levels of an ecosystem.



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**83.** Give reasons:

Energy flow through an ecosystem is 'one way'



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**84.** What is ecological pyramid?



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**85.** Name the scientist who proposed the concept of ecological pyramid.



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**86.** Enlist the three types of ecological pyramid.



**Watch Video Solution**

**87.** What is pyramid of biomass?



[Watch Video Solution](#)

**88.** What is pyramid of numbers?



[Watch Video Solution](#)

**89.** Define Energy pyramid or pyramid of energy.



[Watch Video Solution](#)

**90.** Give an example of ecosystem which shows inverted pyramid of numbers?



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**91.** Give an example of ecosystem which shows inverted pyramid of biomass?



**Watch Video Solution**

**92.** Name the organisms which are not given any place in the ecological pyramids.



**Watch Video Solution**

**93.** In which type of food chain, more energy is available?



**Watch Video Solution**

**94.** Explain the concept of Ecological pyramid.





**Watch Video Solution**

**95.** What is pyramid of biomass?



**Watch Video Solution**

**96.** What is pyramid of numbers?



**Watch Video Solution**

**97.** Differentiate between Upright pyramid and Inverted pyramid.



**Watch Video Solution**

**98.** How would you explain inverted pyramid of biomass in oceanic ecosystem?



**Watch Video Solution**

**99.** Tree shows inverted pyramid of numbers.

Justify the statement.



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**100.** Pyramid of energy is always upright. Give reason.



**Watch Video Solution**

**101.** Enlist the limitations of ecological pyramid.



**Watch Video Solution**

**102.** Define nutrient cycling.



**Watch Video Solution**

**103.** What is another name for nutrient cycling?



**Watch Video Solution**

**104.** Name the two types of nutrient cycles.



**Watch Video Solution**

**105.** Give the example of gaseous cycle.



**Watch Video Solution**

**106.** What is the reservoir for gaseous type of cycle?



**Watch Video Solution**

**107.** Give the example of sedimentary cycle.



**Watch Video Solution**

**108.** What is the reservoir for sedimentary cycle?



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**109.** What is the function of reservoir?



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**110.** Carbon constitutes what % of dry weight of an organism?



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**111.** How much carbon is dissolved in ocean?



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**112.** Which reservoir regulates the amount of carbon dioxide in the atmosphere?



**Watch Video Solution**

**113.** What are sinks?



**Watch Video Solution**



**114.** Name the reservoir and sink of carbon in carbon cycle.



**Watch Video Solution**

**115.** Write a note on the impact of human activities on carbon cycle.



**Watch Video Solution**

**116.** Outline the salient features of carbon cycle in an ecosystem.



**Watch Video Solution**

**117.** Name the various basic processes which take place in carbon cycle.



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**118.** Explain/describe carbon cycle.



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**119.** Define phosphorous cycle.



[Watch Video Solution](#)

**120.** What is the natural reservoir of phosphorous?



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**121.** Write important features of a sedimentary cycle in an ecosystem.



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**122.** Write a short note on Eutrophication.



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**123.** mention the uses of phosphorous in the living organisms.



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**124.** What are the two major difference between carbon and phosphorous cycle?



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**125.** Define phosphorous cycle.



[Watch Video Solution](#)

**126.** Describe phosphorous cycle/sedimentary cycle.



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**127.** What are the short term and long term effects of eutrophication in water bodies?



**Watch Video Solution**

**128.** What is community?



**Watch Video Solution**

**129.** What is meant by ecological succession?



**Watch Video Solution**

**130.** What is climax community?



**Watch Video Solution**

**131.** Enlist the sequential steps which are involved in the process succession.



**Watch Video Solution**

**132.** What is sere?



**Watch Video Solution**

**133.** What is seral stage or seral community?



**Watch Video Solution**



**134.** List the characteristic features of seral communities during different stage of communities.



**Watch Video Solution**

**135.** What is primary succession?



**Watch Video Solution**

**136.** What is secondary succession?



**Watch Video Solution**

**137.** Why is secondary succession faster than the primary succession?



**Watch Video Solution**

**138.** What are pioneer species?



**Watch Video Solution**

**139.** What are pioneer species?



**Watch Video Solution**

**140.** What is the climax community for the xerarch as well as for hydrarch succession?



**Watch Video Solution**

**141.** What is meant by ecological succession?



[Watch Video Solution](#)

**142.** Differentiate between primary succession and secondary succession.



[Watch Video Solution](#)

**143.** Differentiate between Seral community and Climax community.



[Watch Video Solution](#)

**144.** Name and describe patterns of ecological succession.



**Watch Video Solution**

**145.** Name the sequence of seral stages in hydrarch succession.



**Watch Video Solution**

**146.** Enlist the sequence of seral stages in xerarch succession.



**Watch Video Solution**

**147.** Differentiate between Hydrarch and Xerarch.



**Watch Video Solution**

**148.** Explain the following terms: Seral stages



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**149.** Explain the following terms: Pioneer community



[Watch Video Solution](#)

**150.** Explain the following terms: Climax community.



[Watch Video Solution](#)

**151.** Give an account of hydrarch/hydrosere succession of plants.



**Watch Video Solution**

**152.** Give an account of Xerach/Xerosere succession.



**Watch Video Solution**



**153.** Which are the base for a wide range of economic, environmental and aesthetic goods and services?



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**154.** What is an ecosystem services?



**Watch Video Solution**

**155.** Enlist the various ecosystem services.



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**156.** Describe the various ecosystem services.



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**157.** Give an account of ecological service for the benefit of mankind.



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1. Multiple choice questions: Which one of the following has the largest population in a food chain?

A. Producers

B. Primary consumers

C. Secondary consumers

D. Decomposers

**Answer:**



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2. The second trophic level in a lake is \_\_\_\_\_

A. Phytoplankton

B. Zooplankton

C. Benthos

D. Fishes

**Answer:**



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3. Secondary consumers are \_\_\_\_\_

A. Herbivores

B. Producers

C. Carnivores

D. Autotrophs

**Answer:**



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4. What is the % of photosynthetically active radiation in the incident solar radiation?

A. 1

B. 0.5

C. 1-5%

D. 2-10%

**Answer:**



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5. The upright pyramid of numbers is absent in

-----

A. pond

B. forest

C. lake

D. grassland

**Answer:**



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6. Give the term used to express a community in its final stage of succession?

- A. End community
- B. Final community
- C. Climax community
- D. Dark community

**Answer:**



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7. After landslide which of the following type of succession occurs?

A. Primary

B. Secondary

C. Tertiary

D. Climax

**Answer:**



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8. Which of the following is most often a limiting factor of the primary productivity in any ecosystem?

A. Carbon

B. Nitrogen

C. Phosphorus

D. Sulphur

**Answer:**



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

- A. Fresh weight
- B. Dry weight
- C. Number of individuals
- D. Rate of energy flow

**Answer:**



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10. Mass of living matter at a trophic level in an area at any time is called.

A. standing crop

B. detritus

C. humus

D. standing state

**Answer:**



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11. 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:**



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12. Identify the possible link "A" in the following food chain\_\_\_\_\_

*Plant* → A → *og* → *cobra* → *eag* ≤

A. rabbit

B. wolf

C. cobra

D. parrot

**Answer:**



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

- A. Energy flow
- B. decomposition
- C. Productivity
- D. Stratification

**Answer:**



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14. The horizontal distribution of trees is studied in \_\_\_\_\_

- A. scarification
- B. stratification
- C. zonation
- D. speciation

**Answer:**



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15. The ability to produce organic compounds in unit time is \_\_\_\_\_

A. leaching

B. productivity

C. poaching

D. conductivity

**Answer:**



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16. In establishing new ecosystem on rock, the pioneers are \_\_\_\_\_

A. lichens

B. phytoplanktons

C. trees

D. animals

**Answer:**



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17. The succession that starts on abandoned crop land is \_\_\_\_\_

- A. primary succession
- B. xerarch succession
- C. secondary succession
- D. hydrarch succession

**Answer:**



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18. Guano deposits are rich in \_\_\_\_\_

A. sulphur

B. magnesium

C. phosphorous

D. calcium

**Answer:**



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19. Which of the followings is mainly responsible for ozone depletion?

A. Chlorofluorocarbons

B. hydrocarbons

C. carbon monoxide

D. carbon dioxide

**Answer:**



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20. Which is an artificial ecosystem?

A. Pond

B. Lake

C. Aquarium

D. Wetland

**Answer:**



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21. Niche of a species is \_\_\_\_\_

A. place of living

B. specific functions and competitive power

C. habitat and specific functions

D. habitat and climate

**Answer:**



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**22.** Rate of storage of organic matter not used by heterotrophs is termed as \_\_\_\_\_

A. gross primary productivity

B. secondary productivity

C. net productivity

D. net primary productivity

**Answer:**



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**23.** Rate of storage of organic matter stored by autotrophs apart from its use in respiration is termed as \_\_\_\_\_



A. gross primary productivity

B. secondary productivity

C. net productivity

D. net primary productivity

**Answer:**



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**24.** Energy flow in an ecosystem is \_\_\_\_\_

A. bidirectional

B. unidirectional

C. reverse directional

D. multidirectional

**Answer:**



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25. In the pyramid of number, autotrophs occupy \_\_\_\_\_ in pyramid.

A. the base

B. position near the apex

C. position near the base

D. the apex

**Answer:**



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**26.** Pyramid of energy is always \_\_\_\_\_

A. inverted

B. upright

C. spindle shaped

D. cup-shaped

**Answer:**



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**27.** Energy enters the ecosystem through

-----

A. decomposers

B. producers

C. herbivores

D. carnivores

**Answer:**



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**28.** The pyramid of \_\_\_\_\_ in sea is always inverted.

A. biomass

B. energy

C. number

D. species

**Answer:**



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**29.** Maximum CO<sub>2</sub> fixation is done by \_\_\_\_\_

A. fungi

B. zooplanktons

C. phytoplanktons

D. bacteria

**Answer:**



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**30.** Algae utilize all the oxygen in the water and kill the other life in an aquatic system is normally know as \_\_\_\_\_

A. water pollution

B. eutrophication

C. biomagnifications

D. bioaccumulation

**Answer:**



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**31.** Primary consumers are \_\_\_\_\_

A. Herbivores

B. producers

C. Carnivores



## D. Autotrophs

**Answer:**



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**32.** Identify the possible link "A" in the following food chain\_\_\_\_\_

*Plant* → A → *og* → *cobra* → *eag* ≤

A. rabbit

B. wolf

C. insect

D. parrot

**Answer:**



**Watch Video Solution**

**33.** Energy flow in an ecosystem is \_\_\_\_\_

A. bidirectional

B. unidirectional

C. reverse directional

D. multidirectional

**Answer:**



**Watch Video Solution**

**34.** The vertical distribution of species is studied in \_\_\_\_\_

A. stratification

B. scarification

C. zonation

D. speciation

**Answer:**



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35. \_\_\_\_\_ cycle is not a gaseous biogeochemical cycle in ecosystem

A. Sulfur

B. Phosphorous

C. Nitrogen

## D. Carbon

**Answer:**



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**36.** Breakdown of detritus into smaller particles by earthworm is a process called\_\_\_\_\_

A. humification

B. fragmentation

C. mineralization

D. catabolism

**Answer:**



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**37.** What are the two spatial patterns in an ecosystem?



**Watch Video Solution**

**38.** What is productivity?



**Watch Video Solution**

**39.** Give full form of PAR.



**Watch Video Solution**

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**Watch Video Solution**

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Justify the statement.



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**Watch Video Solution**

**54.** Explain/describe carbon cycle.



**Watch Video Solution**