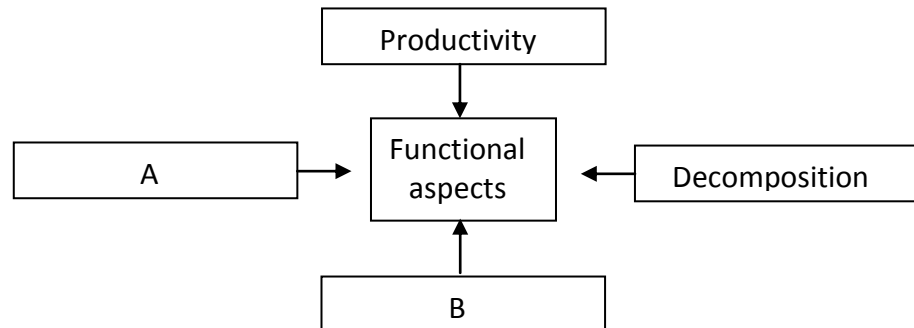


PRODUCTIVITY

1. Observe the flow chart on functional components of ecosystem given below.



- Identify the components given as A and B
- What do you mean by stratification? Give examples.

(EDUMATE 2017)

2. The rate of biomass production in an ecosystem is called productivity.

- How do you differentiate primary and secondary productivity?
- Give brief description of factors that affect primary productivity.

(NCERT)(EDUMATE 2017)

3. Primary productivity is of 2 types, gross primary productivity and net primary productivity. How these productivities are related?

(1) (March 2014)

4. In the equation,

$GPP - R = NPP$, if $NPP =$ Net Primary Productivity

Explain $GPP - R = NPP$. (2) (Model 2019, SAY 2013, 2012)

DECOMPOSITION

5. Decomposers are essential in nature. Justify?

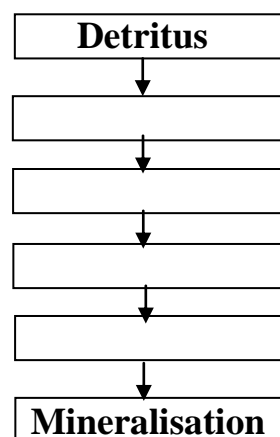
6. Decomposition of detritus is a complex process. Decomposition has various steps. Identify the steps given below and fill the blanks.

Breakdown of detritus into small particles(a).....
Water soluble inorganic nutrients go down into soil horizon(b).....
Degradation of detritus into simpler molecules by bacteria and fungi(c).....
Formation of humus in the soil(d).....
Release of inorganic nutrients into the soil(e).....

(EDUMATE 2017)

7. Steps involved in the process of decomposition are given below. Construct a flow chart showing correct sequence of decomposition choosing the words from the box.

Detritus, Catabolism, Humification, Fragmentation, Leaching, Mineralisation



(2)(Model 2019)

7. The breakdown of complex organic matters into simpler inorganic raw materials like CO_2 , water and various nutrients by decomposers is known as decomposition.

- List the different steps in decomposition.
- Describe the products of decomposition
- What are the factors that inhibit decomposition?
- What are the factors that enhance decomposition? (NCERT)

8. Which among the following is an alternate term for decomposers?

- Autotrophs
- Saprotrophs
- Heterotrophs
- Herbivores

(EDUMATE 2017)

9. Which of the following is detritivore?

- Earthworm
- Virus
- Fox
- Cow

(1)(SAY 2013)

ENERGY FLOW

10. What is the percentage of Photosynthetically Active Radiation (PAR) in the incident solar radiation?

- 100%
- 50%
- 1-5%
- 2-10%

(NCERT)

11. Among the ecological pyramids, one type is always upright and can never be inverted.

- Identify the pyramid
- Why is it always upright?
- How does it keep with first law of thermodynamics?
- Why is the length of a food chain in an ecosystem generally limited to 3-4 trophic levels? Explain with an example.

12. Natural interlinked food chains are called

(1) (March 2013)

13. Observe the food chain given below –

Grass \rightarrow Goat \rightarrow Man

- Identify the type of food chain.
- How does it differ from detritus food chain?
- Write a note on trophic level.

13. Detritus food chain begins with

(2018)

14. While learning trophic levels in class room, teacher asked you to explain the ecological term 'Standing crop' to Raman.

- Explain.
- List any 2 ways of measuring the standing crop of a trophic level.

(2)(March 2010, EDUMATE 2017)

15. Lindeman proposed law of 10%. How will you explain this law in relation to food chain?

16. A list of different organisms in an ecosystem is given below. Arrange them in 1st, 2nd, 3rd and 4th trophic level.

- Phytoplankton
- Man
- Fish
- Zooplankton

(2) (March 2017, 2014)

17. A list of organisms are given. Put them in different trophic levels.

Grass, Man, Fishes, Birds, Lion, Grass hopper, Zooplanktons, trees

(2) (March 2013)

18. Match the item of column I with those of column II.

Column I	Column II
1. Algae	a. Decomposers
2. Grass hopper	b. Secondary carnivore
3. Frog	c. Producers
4. Hawk	d. Primary consumers
	e. Primary carnivores

19. Kalyani wrote man, hen, earthworm, mango-tree in her notebook. Arrange the terms in a food chain sequence. Explain food chain and name the types of food chain. (3) (SAY 2011)

20. Pond is a self-sustainable unit. Some organisms related to pond ecosystem is listed below.
Tadpole, fish, water-plants, kingfisher
a. Construct a food chain with the listed organisms
b. Explain trophic level
c. Point out trophic level of each organism in the constructed food chain
d. Name interconnection of food chains in nature. (4) (SAY 2010)

21. Distinguish between upright and inverted pyramid. (NCERT)

22. Given number of individual in a grassland ecosystem.
Grass hopper - 1500
Grass - 5,842, 000
Wolf - 28
Birds - 215

Draw a pyramid of number showing various trophic levels. (1) (SAY 2012)

22. Pyramid of energy is never been inverted. Why? (2)(March 2018)

23. Consider pond as an ecosystem showing the number of individuals in the following categories.
Carnivores- 2500
Producers - 15,000
Herbivores- 5000
a. Draw the pyramid of number in this ecosystem
b. Comment on the energy flow in the ecosystem. (2)(March 2011)

24. Which one of the following has the largest population in a food chain?
(a) Producers (b) Primary consumers
(c) Secondary consumers (d) Decomposers

25. The second trophic level in a lake is
(a) Phytoplankton (b) Zooplankton
(c) Benthos (d) Fishes

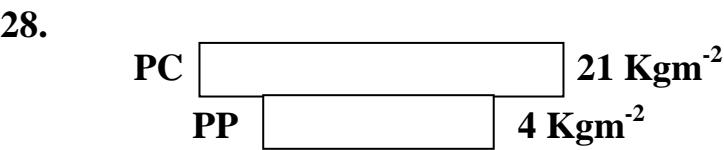
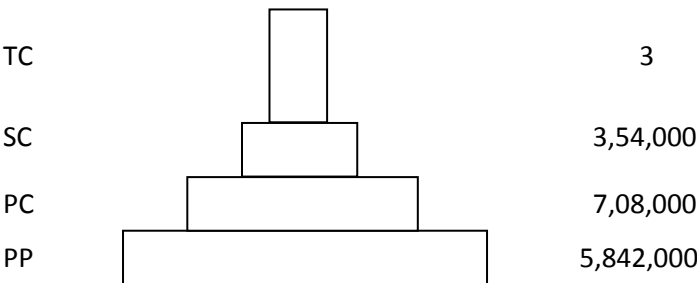
26. Secondary producers are
(a) Herbivores (b) Producers
(c) Carnivores (d) None of the above (NCERT)

27. Field survey by a team of students recorded the following data related to biomass of the organisms in each tropic level of an ecosystem. Draw, name and explain the pyramid.

Organisms	Biomass (g/m ²)
Phytoplanktons	4
Zooplanktons	6
Small fishes	8
Carnivorous fishes	12

(2) (SAY 2014)

28. Observe the pyramid given below. Name the pyramid (2018)



Identify the above pyramid and justify your answer. (2)(Model 2018)

28. Ecological pyramids are usually upright. Meanwhile some, pyramid of biomass is inverted. Explain the reason. (2) (March 2016)

29. In a marine ecosystem, a population of phytoplanktons (1,50,000) supports standing crop of fishes (40,000)
a. Draw the pyramid of biomass and
b. Pyramid of number in this ecosystem (2) (March 2012)

30. Ecological pyramids express the food or energy relationship between organisms. Write any 3 limitations of ecological pyramids. (EDUMATE 2017)

31. Teacher, pointing to a forest said “Long back, this place was a pond”. This gradually change is an example for-
i. Secondary succession
ii. Xerarch succession
iii. Pioneer species
iv. Hydrarch succession (1) (SAY 2013)

31. Gradual predictable changes in the species composition of a given area is called ecological succession. Differentiate between primary and secondary succession. (2)(Model 2019)

32. Find out the stage given below which is not included in hydrarch succession.
a. Forest b. Phytoplanktons
c. Lichens d. Marsh-meadow

32. The different stages of primary succession in water are represented below. Fill the gaps that are unfilled.
(a) Phytoplankton
(b)
(c) Submerged free floating plant stage
(d)
(e)
(f) Scrub stage
(g) (2) (March & EDUMATE 2017)

33. The species that invade a nude area are called species. In a primary succession on rocks, the group that invade first are usually..... (1) (March 2014)

34. Final community that is in near equilibrium with environment is ecological succession is called (1) (March 2013)

35. Succession takes place on bare rock is called Xerarch succession. List out its sequential stages. (2)(Model 2018)

35. Primary succession on rocks is known as Xerosere. Answer the following related with Xerosere.
(a) Name the pioneer community.
(b) Organic acids have important roles in this succession. Justify. (2) (March 2015, 2011)

36. The vegetation in a forest is completely destroyed by fire. After rain for a week, a new plant community begins to develop in that area. Identify the phenomenon.

37. The schematic diagram given below representing the origin of a climax community from the pioneer community in a terrestrial area is given below –

Pioneer	Stage-I	Stage-II	Stage-III	Terminal
Lichens				

a. What does Stage-I, Stage-II and Stage-III represents?
b. What do you mean by terminal stage? What is its significance?

38. During a study tour, teacher showed the primary colonisers on the bank of river ‘Nila’.

- a. Identify the succession and justify your answer
 - b. List the different stages of the identified succession.
- (3)(March 2010), (1) (SAY 2014)

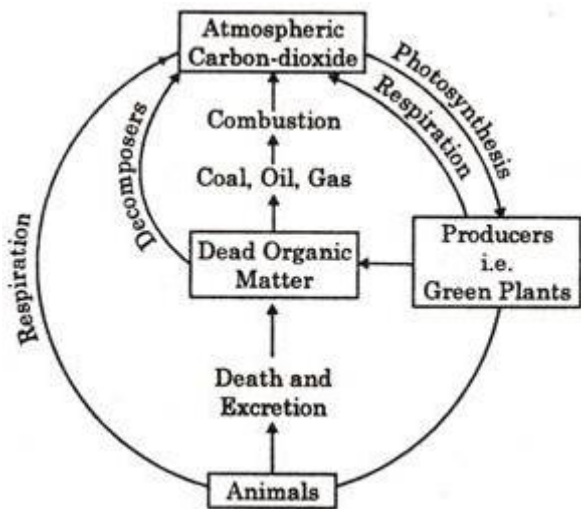
NUTRIENT CYCLING

39. Fill in the blanks with suitable terms:

- a. Plants are called as _____ because they fix carbon dioxide.
- b. In an ecosystem dominated by trees, the pyramid (of numbers) is _____ type.
- c. In aquatic ecosystem, the limiting factor for the productivity is _____
- d. Common detritivores in our ecosystem are _____
- e. The major reservoir of carbon on earth is _____ (NCERT)

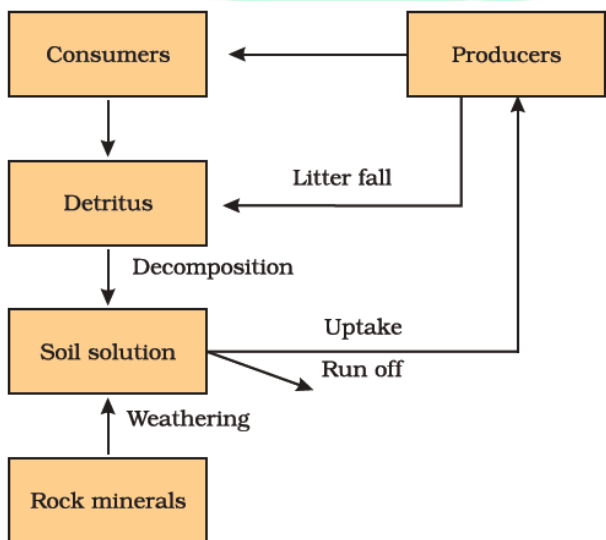
40. Differentiate between standing state and standing crop in an ecosystem. (EDUMATE 2017)

41. Observe the cycle given below. Name and list its salient features in an ecosystem. (NCERT)



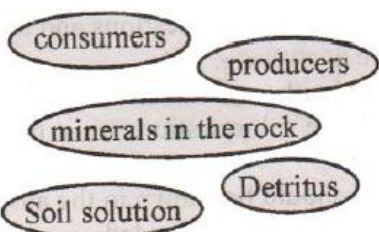
42. Human activities have significantly influenced the carbon cycle by increasing the CO₂ production. Justify this statement with minimum 2 point. (EDUMATE 2017)

43. Observe the outline of a nutrient cycle and answer the following:



- a. Identify the cycle.
- b. Give any 2 examples for vital compounds formed by phosphorus in plants and animals.
- c. Name the major source of phosphorus
- d. In which form does phosphorus occurs in the soil?
- e. How does it differ from a gaseous cycle? (EDUMATE 2017)

44. Given below are the components related to simplified model of mineral cycling in a terrestrial ecosystem. Construct a flow chart. [Hint: weathering of rock]



(2) (March 2015)

45. Nutrients are never lost from the ecosystems and are recycled. Write about

- (a) Gaseous cycle
 - (b) Sedimentary cycle
- (2)(March 2016)(NCERT)

46. “Nature does a lot of service for which an economic value or price-tag can be put”. Substantiate giving example. (March-2013)

47. The products of ecosystem processes are named as ecosystem services. List out any 4 such services. (2)(March 2018, EDUMATE)

