

Exercise - I (Conceptual Questions)

Build Up Your Understanding

1. Ecosystem term coined by :-
 (1) Odum (2) Mishra
 (3) Reiter (4) Tansley
BES001
2. Which one is not a functional aspect of ecosystem?
 (1) Energy flow (2) Productivity
 (3) Decomposition (4) Stratification
BES002
3. The minimum energy is stored at which of the following trophic level in any ecosystem
 (1) Carnivores (2) Herbivores
 (3) Producers (4) Decomposers
BES003
4. The source of energy in an ecosystem is :-
 (1) Sunlight (2) DNA
 (3) ATP (4) RNA
BES004
5. Ecosystem may be defined as :-
 (1) A localized association of several plants and animals
 (2) Different communities of plants, animals and microbes together with their physico-chemical environment.
 (3) Different communities of plants and microbes along with their physico-chemical environment
 (4) None of the above
BES005
6. The importance of ecosystem lies in: -
 (1) Flow of energy
 (2) Cycling of materials
 (3) Both the above
 (4) None of the above
BES006

7. Ecosystem is:-
 (1) Any functional unit that includes the whole community in a given area interacting with the abiotic factors
 (2) A group of green plants
 (3) A group of animals interacting with environment
 (4) Man and pets living together
BES007
8. Who proposed that ecosystem is symbol of structure & function of nature :-
 (1) Gardner (2) Odum
 (3) Tansley (4) Reiter
BES008
9. Largest ecosystem of the world are: -
 (1) Forests (2) Grass lands
 (3) Great lakes (4) Oceans
BES009
10. Which of the following is a manmade artificial ecosystem?
 (1) Grassland ecosystem
 (2) Forest ecosystem
 (3) Ecosystem of artificial lakes & dams
 (4) None of these
BES010
11. Nepenthes (Insectivorous pitcher plant) is:
 (1) Producer (2) Consumer
 (3) Both (1) & (2) (4) None of these
BES011
12. Which one is omnivorous?
 (1) Cow (2) Lion
 (3) Deer (4) Man
BES012
13. Which biotic components mainly help in recycling of minerals?
 (1) Producers (2) Consumers
 (3) Decomposers (4) All the above
BES013

- | | |
|---|---|
| <p>14. Trophic levels are formed by :-
 (1) Only plants
 (2) Only carnivores
 (3) Only animals
 (4) Organisms linked in food chain
 BES014</p> <p>15. In a forest ecosystem green plants are :-
 (1) Primary producers
 (2) Consumers
 (3) Primary consumers
 (4) Decomposers
 BES015</p> <p>16. In an ecosystem the function of the producers is to :-
 (1) Convert organic compounds into inorganic compounds
 (2) Trap solar energy and convert it into chemical energy
 (3) Utilize chemical energy
 (4) Release energy
 BES016</p> <p>17. With regard to ecological food chain, man is a :-
 (1) Consumer
 (2) Producer
 (3) Both consumer & producer
 (4) Decomposer
 BES017</p> <p>18. A plant, being eaten by a herbivore which in turn is eaten by a carnivore makes :-
 (1) Food chain (2) Web of Food
 (3) Omnivores (4) Interdependence
 BES018</p> <p>19. When peacock, eats snake which eats insects depends on green plants, the peacock is?
 (1) A primary consumer
 (2) A primary decomposer
 (3) A final decomposer of plants
 (4) The apex of the food pyramid
 BES019</p> | <p>20. If we completely remove decomposers from an ecosystem, the ecosystem functioning will be adversely affected because: -
 (1) Mineral movement will be blocked
 (2) Herbivores will not receive solar energy
 (3) Energy flow will be blocked
 (4) Rate of decomposition of other components will be very high
 BES020</p> <p>21. Path of energy flow in an ecosystem is :-
 (1) Herbivorous → producer → carnivorous → decomposer
 (2) Herbivorous → carnivorous → producer → decomposer
 (3) Producer → carnivorous → herbivorous → decomposer
 (4) Producer → herbivorous → carnivorous → decomposer
 BES021</p> <p>22. Pyramids of energy are :-
 (1) Always upright (2) Always Inverted
 (3) Mostly upright (4) Mostly inverted
 BES022</p> <p>23. The ecological pyramid of numbers in pond ecosystem is :-
 (1) Upright
 (2) Inverted
 (3) May upright or Inverted
 (4) First upright then inverted
 BES023</p> <p>24. An ecosystem resists change because it is in a state of :-
 (1) Homeostasis
 (2) Regular Illumination
 (3) Static Imbalance
 (4) Food accumulation
 BES024</p> |
|---|---|

- | | |
|--|--|
| <p>25. What is true about any ecosystem?
 (1) It is self-regulatory
 (2) It is self-sustained
 (3) Top carnivores have climax trophic level position
 (4) All of these above
 BES025</p> <p>26. The Pyramid of numbers in grassland ecosystem will be :-
 (1) Upright (2) Inverted
 (3) Irregular (4) Linear
 BES026</p> <p>27. Which ecosystem has maximum number of producers in an unit area?
 (1) Pond (2) Grassland
 (3) Forest (4) Tundra
 BES027</p> <p>28. The storage of energy at consumer level is known as :-
 (1) Gross primary production
 (2) Secondary productivity
 (3) Net primary productivity
 (4) Net productivity
 BES028</p> <p>29. Gross primary productivity is :-
 (1) Rate at which organic molecules are formed in an autotroph
 (2) Rate at which organic molecules are used up by an autotroph
 (3) Storage of organic molecules in the body of an autotroph
 (4) Rate at which organic molecules are transferred to next higher trophic level
 BES029</p> <p>30. Carbon cycle includes (the following is a logical sequence) :-
 (1) Producer – consumer – decomposer
 (2) Decomposer – consumer – producer
 (3) Producer – decomposer – consumer
 (4) Consumer – producer – decomposer
 BES030</p> | <p>31. The flow of materials from non-living components to living components and back to the non-living components in a more or less cyclic manner is called a :-
 (1) Gaseous cycle
 (2) Sedimentary cycle
 (3) Biogeochemical cycle
 (4) Hydrologic cycle
 BES031</p> <p>32. A group of interconnected food chains is called:
 (1) Pyramid of energy
 (2) Food web
 (3) Food cycle
 (4) Complex food chain
 BES032</p> <p>33. Which of these is the food chain which runs from larger to smaller organisms?
 (1) Grazing food chain
 (2) Saprotrophic food chain
 (3) Predatory food chain
 (4) Parasitic food chain
 BES033</p> <p>34. A food chain starts from: -
 (1) Nitrogen fixing organisms
 (2) Photosynthetic organisms
 (3) Respiration
 (4) Decomposers
 BES034</p> <p>35. The functional unit of nature is called: -
 (1) Community (2) Ecosystem
 (3) Population (4) Succession
 BES035</p> <p>36. Primary productivity of plants in an ecosystem depends on :-
 (1) A variety of environmental factors
 (2) Availability of nutrients
 (3) Photosynthetic capacity of plants
 (4) All of the above
 BES036</p> |
|--|--|

37. The annual net primary productivity of land is about :-

(1) 170 billion tons (2) 70 billion tons
(3) 55 billion tons (4) 115 billion tons

BES037

38. Which of the following is included in decomposition?

(1) Fragmentation (2) Leaching
(3) Catabolism (4) All of the above

BES038

39. Decomposition rate is slow if detritus is rich in :-

(1) Nitrogen (2) Humus
(3) Sugars (4) Lignin and Chitin

BES039

40. Match the columns I, II and III, and choose the correct combination from the options given :-

column I	Column II	Column III
a. 1 ⁰ Producer	1. T ₁	K. Grasshopper
b. 1 ⁰ consumer	2. T ₂	L. Wolf
c. 2 ⁰ Consumer	3. T ₃	M. Lion
d. 3 ⁰ consumer	4. T ₄	N. Phytoplankton

- (1) a - 1 - K, b - 2 - L, c - 3 - M, d - 4 - N
(2) a - 1 - N, b - 2 - M, c - 3 - K, d - 4 - L
(3) a - 1 - N, b - 2 - K, c - 3 - L, d - 4 - M
(4) a - 2 - N, b - 3 - K, c - 4 - L, d - 1 - M

BES040

41. A plant receives 10⁶ J of sunlight energy. The energy reached at the tertiary consumer will be: -

(1) 1000 J (2) 100 J
(3) 10 J (4) 1 J

BES041

42. An inverted pyramid of biomass can be found in which ecosystem: -

(1) Forest (2) Pond
(3) Grass land (4) Tundra

BES042

43. In an ecosystem:

(1) Primary producers are more than primary consumers
(2) Primary consumers are larger than primary producers
(3) Secondary consumers are larger than primary producers
(4) Primary consumers are least depend on primary producers

BES043

44. Large ecosystems are called -

(1) Biomes (2) Ecotone
(3) Ecads (4) Biocoenosis

BES045

45. Which one is not a functional aspect of ecosystem ?

(1) Energy flow (2) Productivity
(3) Decomposition (4) Stratification

BES046

46. Vultures in an ecosystem are :

(1) Predators (2) Scavengers
(3) Consumers (4) Top carnivores

BES047

47. The maximum energy is stored at which of the following trophic level in any ecosystem

(1) Producers (2) Herbivores
(3) Carnivores (4) Top carnivores

BES048

48. Limiting factor for productivity in lake is :-

(1) Phosphorous (2) Nitrogen
(3) Carbon (4) Sulphur

BES163

49. In an ecosystem, energy flow is always :-

(1) Bidirectional
(2) Unidirectional
(3) In all directions
(4) More than one option is correct

BES164

- 50.** What is formed when a biological community is integrated with its physical environment?
 (1) Biosphere (2) Biome
 (3) Ecosystem (4) Population
BES165

- 51.** Based on ecology which is not essential for an ecosystem to self-sustain-
 (1) Consumers (2) Producers
 (3) Decomposers (1) Both (1) and (2)
BES166

- 52. Statement-1 :** Death of organism is the beginning of the detritus food chain/web.
Statement 2 : Amount of energy decreases at successive trophic levels.
 (1) Both statement 1 and 2 are incorrect
 (2) Statement 1 is correct but statement 2 is incorrect
 (3) Statement 1 is incorrect but statement 2 is correct
 (4) Both statement 1 and 2 are correct
BES167

- 53.** A pond is a :-
 (1) Biome
 (2) Natural ecosystem
 (3) Artificial ecosystem
 (4) Community of plants & animals
BES056

- 54.** Which of the following are not given any place in ecological pyramids –
 (1) Herbivores (2) Carnivores
 (3) Producers (4) Saprophytes
BES168

- 55.** The bulk of nitrogen in nature is fixed by -
 (1) Lighting
 (2) Chemical industries
 (3) Denitrifying bacteria
 (4) Symbiotic bacteria
BES063

- 56.** A good soil is that which -
 (1) holds whole of the water entering into it
 (2) Allows limited amount of water into it
 (3) Allows the water to percolate slowly into it
 (4) Allows the water to pass very quickly from it
BES068

- 57.** The soil near the surface is usually darker than the soil about one meter down. This is because the top soil is
 (1) Young & wet
 (2) Richer in organic matter
 (3) Richer in Ca & Mg
 (4) Dry
BES069

- 58.** A soil is said to be fertile when -
 (1) It is rich in organic matter
 (2) It has capacity to hold water
 (3) It has a capacity to hold nutrients
 (4) It holds water & all essential nutrients in a definite proportion
BES070

- 59.** Forests near equator region are called -
 (1) Deciduous
 (2) Tropical rain forests
 (3) Coniferous forests
 (4) Temperate forests
BES072

- 60.** All the living organisms and non-living factors of the earth constitute -
 (1) Biosphere
 (2) Community
 (3) Biome
 (4) Association
BES073

61. The term biosphere is used for the zone of the earth where life exists -
 (1) On the lithosphere
 (2) In the hydrosphere
 (3) In the lithosphere and hydrosphere
 (4) In the lithosphere, hydrosphere and atmosphere
BES074
62. A biosphere is composed of
 (1) Living organisms
 (2) Living organisms + Lithosphere
 (3) Living organisms + lithosphere + atmosphere
 (4) Living organisms + lithosphere + atmosphere + hydrosphere
BES082
63. Which one of the following is *not* used for construction of ecological pyramids?
 (1) Rate of energy flow
 (2) Fresh weight
 (3) Dry weight
 (4) Number of individuals
BES083
64. Which one of the following ecosystem types has the highest annual net primary productivity?
 (1) Temperate deciduous forest
 (2) Tropical rain forest
 (3) Tropical deciduous forest
 (4) Temperate evergreen forest
BES084
65. Which one of the following types of organisms occupy more than one trophic level in a pond ecosystem?
 (1) Frog (2) Phytoplankton
 (3) Fish (4) Zooplankton
BES086
66. The biomass available for consumption by the herbivores and the decomposers is called :-
 (1) Gross primary productivity
 (2) Net primary productivity
 (3) Secondary productivity
 (4) Standing crop
BES087
67. Mass of living matter at a trophic level in an area at any time is called: -
 (1) Standing crop (2) Detritus
 (3) Humus (4) Standing state
BES089
68. Of the total incident solar radiation, the proportion of PAR is: -
 (1) About 70% (2) About 60%
 (3) Less than 50% (4) More than 80%
BES090
69. Which one of the following animals may occupy more than one trophic level in the same ecosystem at the same time?
 (1) Frog (2) Sparrow
 (3) Lion (4) Goat
BES093
70. The breakdown of detritus into smaller particles by earthworm is a process called
 (1) Catabolism (2) Humification
 (3) Fragmentation (4) Mineralisation
BES094
71. Which one of the following is not a functional unit of an ecosystem: -
 (1) Productivity
 (2) Species diversity
 (3) Energy flow
 (4) Decomposition
BES095

72. Identify the possible link "A" in the following food chain: -

Plant → Insect → Frog → "A" → Eagle

- (1) Cobra (2) Parrot
(3) Rabbit (4) Wolf

BES099

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

- (1) Decomposer (2) Producer
(3) Parasite (4) Consumer

BES103

74. Which one of the following is functional characteristics of ecosystem ?

- (1) Stratification
(2) Productivity
(3) Species dominancy
(4) Species diversity

BES187

75. In an ecosystem :-

- (1) Primary producers are more than primary consumers.
(2) Primary consumers are always larger than primary producers.
(3) Secondary consumers are always larger than primary producers.
(4) Primary consumers are least depend on primary producers.

BES188

EXERCISE-I (Conceptual Questions)

ANSWER KEY

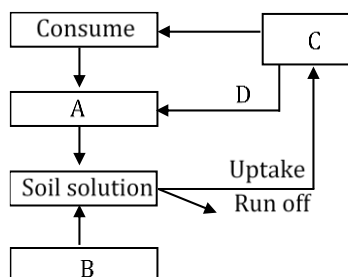
Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Answer	4	4	1	1	2	3	1	3	4	3	3	4	3	4	1
Question	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Answer	2	1	1	4	1	4	1	1	1	4	1	1	2	1	1
Question	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Answer	3	2	4	2	2	4	4	4	4	3	3	2	1	1	4
Question	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Answer	2	1	1	2	3	1	4	2	4	4	3	2	4	2	1
Question	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Answer	4	4	2	2	3	2	1	3	2	3	2	1	4	2	1

Exercise - II (Previous Year Questions)

AIPMT/NEET

AIPMT 2014

1. Given below is a simplified model of phosphorus cycling in a terrestrial ecosystem with four blanks (A-D). Identify the blanks :-



	A	B	C	D
(1)	Rock minerals	Detritus	Litter fall	Producers
(2)	Litter fall	Producers	Rock minerals	Detritus
(3)	Detritus	Rock minerals	Producer	Litter fall
(4)	Producers	Litter fall	Rock minerals	Detritus

BES105

2. If 20 J of energy is trapped at producer level, then how much energy will be available to peacock as food in the following chain?

plant → mice → snake → peacock

- (1) 0.02 J (2) 0.002 J
(3) 0.2 J (4) 0.0002 J

BES106

AIPMT 2015

3. The mass of living material at a trophic level at a particular time is called :-
- (1) Standing state
(2) Net primary productivity
(3) Standing crop
(4) Gross primary productivity

BES107

4. In an ecosystem the rate of production of organic matter during photosynthesis is termed as :-

- (1) Gross primary productivity
(2) Secondary productivity
(3) Net productivity
(4) Net primary productivity

BES108

5. Secondary Succession takes place on/in :-

- (1) Degraded forest
(2) Newly created pond
(3) Newly cooled lava
(4) Bare rock

BES109

6. In which of the following both pairs have corrected combination?

(1)	Gaseous nutrient cycle	Sulphur and Phosphorus
	Sedimentary nutrient cycle	Carbon and Nitrogen
(2)	Gaseous nutrient cycle	Carbon and Nitrogen
	Sedimentary nutrient cycle	Sulphur and Phosphorus
(3)	Gaseous nutrient cycle	Carbon and Sulphur
	Sedimentary nutrient cycle	Nitrogen and Phosphorus
(4)	Gaseous nutrient cycle	Nitrogen and Sulphur
	Sedimentary nutrient cycle	Carbon and Phosphorus

BES110

7. During ecological succession :-
- (1) The changes lead to a community that is in near equilibrium with the environment and is called pioneer community
 - (2) The gradual and predictable change in species composition occurs in a given area
 - (3) The establishment of a new biotic community is very fast in its primary phase
 - (4) The numbers and types of animals remain constant

BES111

NEET-I 2016

8. The term ecosystem was coined by :-
- (1) E. P. Odum
 - (2) A. G. Tansley
 - (3) E. Haeckel
 - (4) E. Warming

BES112

NEET-II 2016

9. The primary producers of the deep-sea hydrothermal vent ecosystem are :-
- (1) Blue-green algae
 - (2) Coral reefs
 - (3) Green algae
 - (4) Chemosynthetic bacteria

BES113

NEET-UG 2017

10. Which ecosystem has the maximum biomass?
- (1) Grassland ecosystem
 - (2) Pond ecosystem
 - (3) Lake ecosystem
 - (4) Forest ecosystem

BES114

11. The sequential events from initial stage till climax stage in a succession are called :-
- (1) Ecesis
 - (2) Sere
 - (3) Nudation
 - (4) Migration

BES115

NEET-UG 2019

12. Which of the following ecological pyramids is generally inverted?
- (1) Pyramid of numbers in grassland
 - (2) Pyramid of energy
 - (3) Pyramid of biomass in a forest
 - (4) Pyramid of biomass in a sea

BES116

13. Which of the following statements is incorrect?
- (1) Biomass decreases from first to fourth trophic level
 - (2) Energy content gradually increases from first to fourth trophic level
 - (3) Number of individuals decreases from first trophic level to fourth trophic level
 - (4) Energy content gradually decreases from first to fourth trophic level

BES117

14. The rate decomposition is faster in the ecosystem due to following factors EXCEPT
- (1) Detritus rich in sugars
 - (2) Warm and moist environment
 - (3) Presence of aerobic soil microbes
 - (4) Detritus richer in lignin and chitin

BES118

NEET-UG 2020

15. In relation of Gross primary productivity and Net primary productivity of an ecosystem, which one of the following statements is correct?

- (1) There is no relationship between Gross primary productivity and Net primary productivity.
- (2) Gross primary productivity is always less than net primary productivity.
- (3) Gross primary productivity is always more than net primary productivity.
- (4) Gross primary productivity and Net primary productivity are one and same.

BES119

NEET 2021

16. **Assertion (A)** : A person goes to high altitude and experiences 'altitude sickness' with symptoms like breathing difficulty and heart palpitations.

Reason (R) : Due to low atmospheric pressure at high altitude, the body does not get sufficient oxygen.

In the light of the above statements, choose the correct answer from the options given below.

- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (2) Both (A) and (R) are true but (R) is not the correct explanation of (A)
- (3) (A) is true but (R) is false
- (4) (A) is false but (R) is true

BES189

NEET-UG 2021

17. The amount of nutrients, such as carbon, nitrogen, phosphorus and calcium present in the soil at any given time, is referred as
- (1) Climax
 - (2) Climax community
 - (3) Standing state
 - (4) Standing crop

BES120

18. Which of the following statements is not correct?

- (1) Pyramid of biomass in sea is generally inverted.
- (2) Pyramid of biomass in sea is generally upright.
- (3) Pyramid of energy is always upright.
- (4) Pyramid of numbers in a grassland ecosystem is upright.

BES121

19. In the equation $GPP - R = NPP$
R represents :-

- (1) Radiant energy
- (2) Retardation factor
- (3) Environment factor
- (4) Respiration losses

BES122

NEET-UG 2022

20. The amount of biomass or organic matter produced per unit area over a time period by plants during photosynthesis is called:
- (1) Secondary production
 - (2) Primary production
 - (3) Gross primary production
 - (4) Net primary production

BES123

21. Which one of the following will accelerate phosphorus cycle?

- (1) Volcanic activity
- (2) Weathering of rocks
- (3) Rain fall and storms
- (4) Burning of fossil fuels

BES124

22. Match the List-I with List-II

List-I		List-II	
(a)	Carbon dissolved in oceans	(i)	55 billion tons
(b)	Annual fixation of carbon through photosynthesis	(ii)	71%
(c)	PAR captured by plants	(iii)	4×10^{13} kg
(d)	Productivity of oceans	(iv)	2 to 10%

Choose the correct answer from the options given below:

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

BES125

NEET-UG 2023

23. Identify the **correct** statements :

- A. Detritivores perform fragmentation.
- B. The humus is further degraded by some microbes during mineralization.
- C. Water soluble inorganic nutrients go down into the soil and get precipitated by a process called leaching.

D. The detritus food chain begins with living organisms.

E. Earthworms break down detritus into smaller particles by a process called catabolism.

Choose the **correct** answer from the option given below:

- (1) B, C, D only
- (2) C, D, E only
- (3) D, E, A only
- (4) A, B, C only

BES159

24. In the equation

$$\boxed{GPP - R = NPP}$$

GPP is Gross Primary Productivity

NPP is Net Primary Productivity

R here is ____.

- (1) Respiratory quotient
- (2) Respiratory loss
- (3) Reproductive allocation
- (4) Photosynthetically active radiation

BES160

NEET-UG 2023 (Manipur)

25. The amount of nutrients such as carbon, nitrogen, potassium and calcium present in the soil at any given time is referred to as :

- (1) Standing state
- (2) Standing crop
- (3) Humus
- (4) Detritus

BES161

26. Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) : A person goes to high altitude and experiences "Altitude Sickness" with symptoms like breathing difficulty and heart palpitations.

Reason (R) : Due to low atmospheric pressure at high altitude, the body does not get sufficient oxygen.

In the light of the above statements, choose the **correct** answer from the options given below :

- (1) **(A)** is true but **(R)** is false
- (2) **(A)** is false but **(R)** is true
- (3) Both **(A)** and **(R)** are true and **(R)** is the correct explanation of **(A)**.
- (4) Both **(A)** and **(R)** are true but **(R)** is not the correct explanation of **(A)**.

BES162

NEET-UG 2024

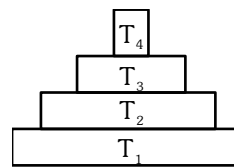
27. In an ecosystem if the Net Primary Productivity (NPP) of first trophic level is $100 \times (kcal\ m^{-2})\ yr^{-1}$, what would be the GPP (Gross Primary Productivity) of the third trophic level of the same ecosystem ?

- (1) $\frac{x}{10} (kcal\ m^{-2})\ yr^{-1}$
- (2) $x (kcal\ m^{-2})\ yr^{-1}$
- (3) $10x (kcal\ m^{-2})\ yr^{-1}$
- (4) $\frac{100x}{3x} (kcal\ m^{-2})\ yr^{-1}$

BES169

RE-NEET-UG 2024

28. Consider the pyramid of energy of an ecosystem given below :



If T_4 is equivalent to 1000J, what is the value at T_1 .

- (1) $\frac{10000}{10}$ J
- (2) $\frac{10000}{10} \times 4$ J
- (3) 10,000 J
- (4) 10,00,000 J

BES170

EXERCISE-II (Previous Year Questions)

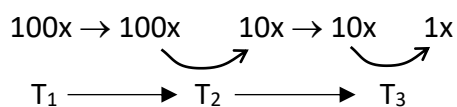
ANSWER KEY

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Answer	3	1	3	1	1	2	2	2	4	4	2	4	2	4	3
Question	16	17	18	19	20	21	22	23	24	25	26	27	28		
Answer	1	3	2	4	2	2	3	4	2	1	3	3	4		

SOLUTION

16. If we go high altitude place we experience 'Altitude sickness' its symptoms include nausea, fatigue & heart palpitation. This is because of low atmospheric pressure of high altitudes the body does not get enough oxygen. The body compensates low oxygen availability by increasing red blood cell production, decreasing the binding capacity of haemoglobin by increasing breathing rate. This is gradual physiological adjustment (Acclimatisation) of organism (human being) to the slowly changing new environmental conditions.

27. $NPP = 100x \text{ Kcal/m}^2/\text{year}$



So 10x Kcal/m²/year is available to third trophic level as gross productivity at third trophic level.

Exercise - III

Master Your Understanding

(A) NCERT BASED QUESTIONS

1. Adaptation to low temperature and freezing in animals occurs due to the production of :-
(1) Antifreeze proteins (2) Chaperonins
(3) Proline (4) Analine
BES126
2. Which one of the following has the largest population in a food chain ?
(1) Producers
(2) Primary consumers
(3) Secondary consumers
(4) Decomposers
BES127
3. The second trophic level in a lake is :-
(1) Phytoplankons (2) Zooplanktons
(3) Benthos (4) Fishes
BES128
4. Secondary producers are :-
(1) Herbivores
(2) Producers
(3) Carnivores
(4) None of the above
BES129
5. What is the percentage of photosynthetically active radiation (PAR) in the incident solar radiations ?
(1) 100 % (2) 50 %
(3) 1–5 % (4) 2 – 10 %
BES130
6. Which of the following is an abiotic components of the ecosystem ?
(1) Bacteria (2) Humus
(3) Plants (4) Fungi
BES131
7. Which of the following processes helps in Nutrient conservation ?
(1) Mineralisation (2) Immobilisation
(3) Leaching (4) Nitrification
BES132
8. Which of the following represents the sedimentary type of nutrient cycle ?
(1) Sulphur (2) Phosphorus
(3) Nitrogen (4) Oxygen
BES133
9. Photosynthetically active radiation (PAR) represents the following range of wave length.
(1) 400 – 700 nm (2) 500 – 600 nm
(3) 450 – 950 nm (4) 340 – 450 nm
BES134
10. The detritus food chain (DFC) begins with :-
(1) Producers (2) Grasses
(3) Dead organic matter (4) Humus
BES171
11. Rate of capture of solar energy or total production of organic matter is called as-
(1) Gross primary productivity
(2) Gross secondary productivity
(3) Net primary productivity
(4) Secondary productivity
BES172
12. A sparrow is a _____ consumer when it eats seeds, fruits, peas, and a _____ consumer when it eats insects and worms.
(1) Secondary, Primary
(2) Primary, Secondary
(3) Tertiary, Secondar
(4) Primary, Tertiary
BES173

(B) ANALYTICAL QUESTIONS

13. Total amount of energy trapped by green plants in food is called :-

- (1) Gross primary production
- (2) Net primary production
- (3) Standing crop
- (4) Standing state

BES140

14. Bacteria are essential in carbon cycle as :-

- (1) Decomposer (2) Synthesizer
- (3) Consumer (4) Pri. Producer

BES141

15. In which biome a new plant may adapt soon:-

- (1) Tropical rain forest (2) Desert
- (3) Mangrove (4) Sea island

BES142

16. Concentration of DDT is highest in :-

- (1) Primary consumer
- (2) Producers
- (3) Top consumer
- (4) Decomposers

BES143

17. Percentage energy transferred to higher trophic level in food chain is :-

- (1) 1% (2) 10% (3) 90% (4) 100%

BES144

18. Biotic and abiotic components form :-

- (1) Community (2) Ecosystem
- (3) Population (4) Species

BES145

19. Species diversity is maximum in :-

- (1) Tropical rain forest (2) Temperate forest
- (3) Deserts (4) Hill slopes

BES146

20. Insectivorous plants grow in the soil which is deficient in :-

- (1) Mg (2) Ca (3) P (4) N

BES147

21. Which is the reason for highest biomass in aquatic ecosystem-

- (1) Nano plankton, blue green algae, green algae
- (2) Sea grass, and slime molds
- (3) Benthonic and brown algae
- (4) Diatoms

BES149

22. Pneumatophores are found in-

- (1) The vegetation which is found in marshy and saline lake
- (2) The vegetation which found in saline soil
- (3) Xerophytes
- (4) Epiphytes

BES150

23. In which of the following plant sunken stomata are found :-

- (1) *Nerium* (2) Hydrilla
- (3) Mango (4) Guava

BES151

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

- (1) High stability and low resilience
- (2) Low stability and low resilience
- (3) High stability and high resilience
- (4) Low stability and high resilience

BES153

25. In which one of the following habitats does the diurnal temperature of soil surface vary most ?

- (1) Forest (2) Desert
- (3) Grassland (4) Shrub land

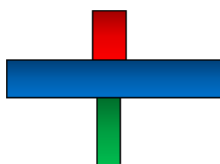
BES154

26. Which of the following is **not** true for a species?

- (1) Members of a species can interbreed
- (2) Gene flow does not occur between the populations of a species
- (3) Each species is reproductively isolated from every other species
- (4) Variations occur among members of a species

BES157

27. Given below is one of the types of ecological pyramids. This type represents



- (1) Pyramid of numbers in a grassland
- (2) Pyramid of biomass in a fallow land
- (3) Pyramid of biomass in a lake
- (4) Energy pyramid in a spring

BES158

28. Consider the following statements concerning food chains :-

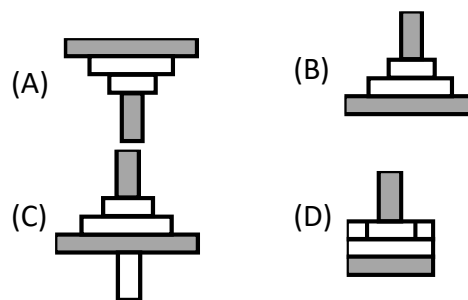
- (a) Removal of 80% tigers from an area resulted in greatly increased growth of vegetation.
- (b) Removal of most of the carnivores resulted in an increased population of deers.
- (c) The length of food chains is generally limited to 3-4 trophic levels due to energy loss.
- (d) The length of food chains may vary from 2 to 8 trophic levels.

Which two of the above statements are **correct**?

- (1) a, d (2) a, b (3) b, c (4) c, d

BES085

29. Which of the following representations shows the pyramid of numbers in a forest ecosystem: -



- (1) A (2) B (3) C (4) D

BES088

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

- (1) Its base is broad
- (2) It shows energy content of different trophic level organisms
- (3) It is inverted in shape
- (4) It is upright in shape

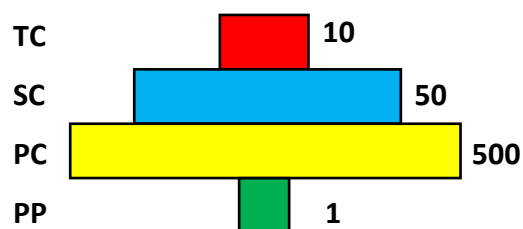
BES092

31. The upright pyramid of number is absent in

- (1) Lake (2) Grassland
- (3) Pond (4) Forest

BES096

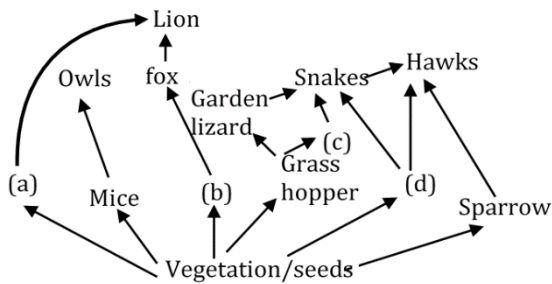
32. Given below is an imaginary pyramid of numbers. What could be one of the possibilities about certain organisms at some of the different levels?



- (1) Level one PP is "Pipal trees" and the level SC is "sheep"
- (2) Level PC is "rats" and level SC is "cats"
- (3) Level PC is "insects" and level SC is "small insectivorous birds"
- (4) Level PP is "Phytoplanktons" in sea and "Whale" on top level TC.

BES098

33. Identify the likely organisms (a), (b), (c) and (d) in the food web shown below :-



	(a)	(b)	(c)	(d)
(1)	rat	dog	tortoise	crow
(2)	squirrel	cat	rat	pigeon
(3)	deer	rabbit	frog	rat
(4)	dog	squirrel	bat	deer

BES101

34. The rate of formation of new organic matter by rabbit in a grassland, is called :-
- (1) Net primary productivity
 - (2) Gross primary productivity
 - (3) Net productivity
 - (4) Secondary productivity

BES102

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

- (1) Leaching — Water soluble inorganic nutrients rise to the top layers of soil
- (2) Fragmentation — Carried out by organisms such as earthworm
- (3) Humification — Leads to the accumulation of a dark coloured substance humus which undergoes microbial action at a very fast rate
- (4) Catabolism — Last step in the decomposition under fully anaerobic condition

BES104

EXERCISE - III

ANSWER KEY

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Answer	1	1	2	1	2	2	2	2	1	3	1	2	1	1	1
Question	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Answer	3	2	2	1	4	3	1	1	4	2	2	3	3	2	3
Question	31	32	33	34	35										
Answer	4	3	3	4	2										