
UPSC & State Public Service Commission

ENVIRONMENT

&

ECOLOGY

General Studies-7

Chapterwise & Sub-topicwise Solved Papers

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ANALYSIS OF QUESTION PAPERS

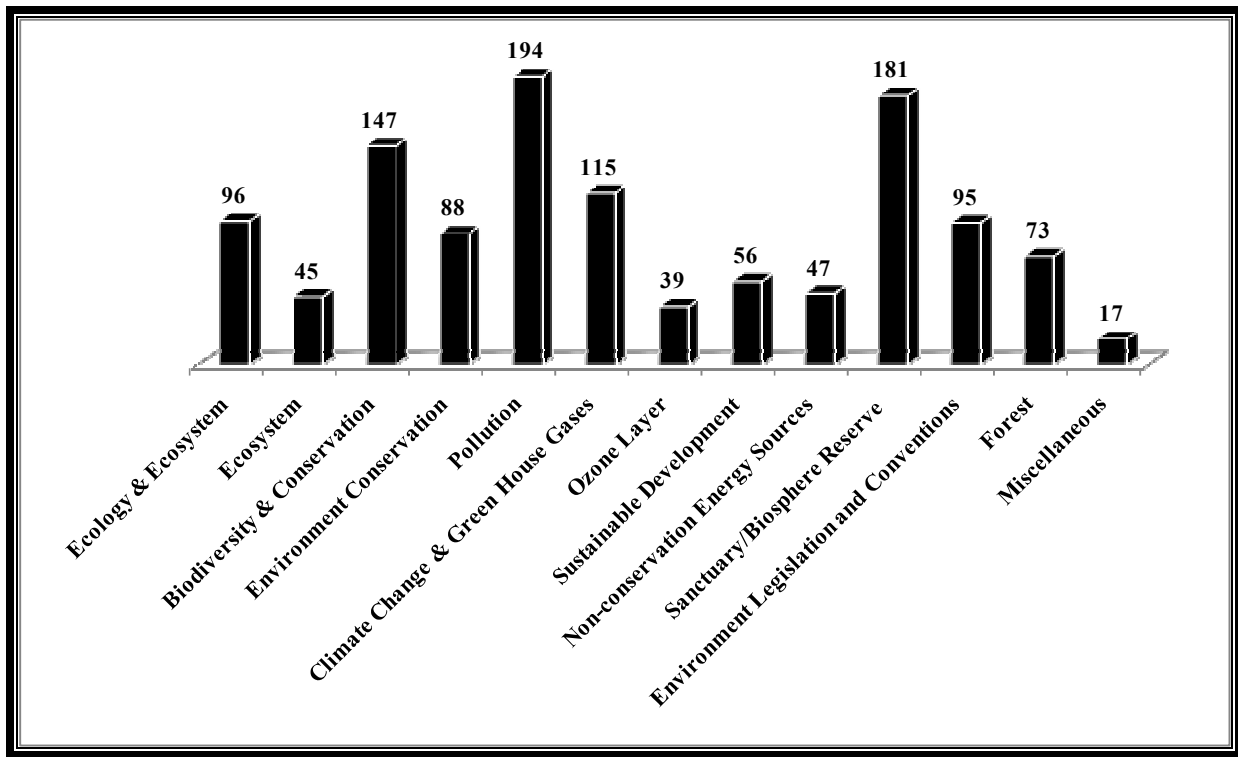
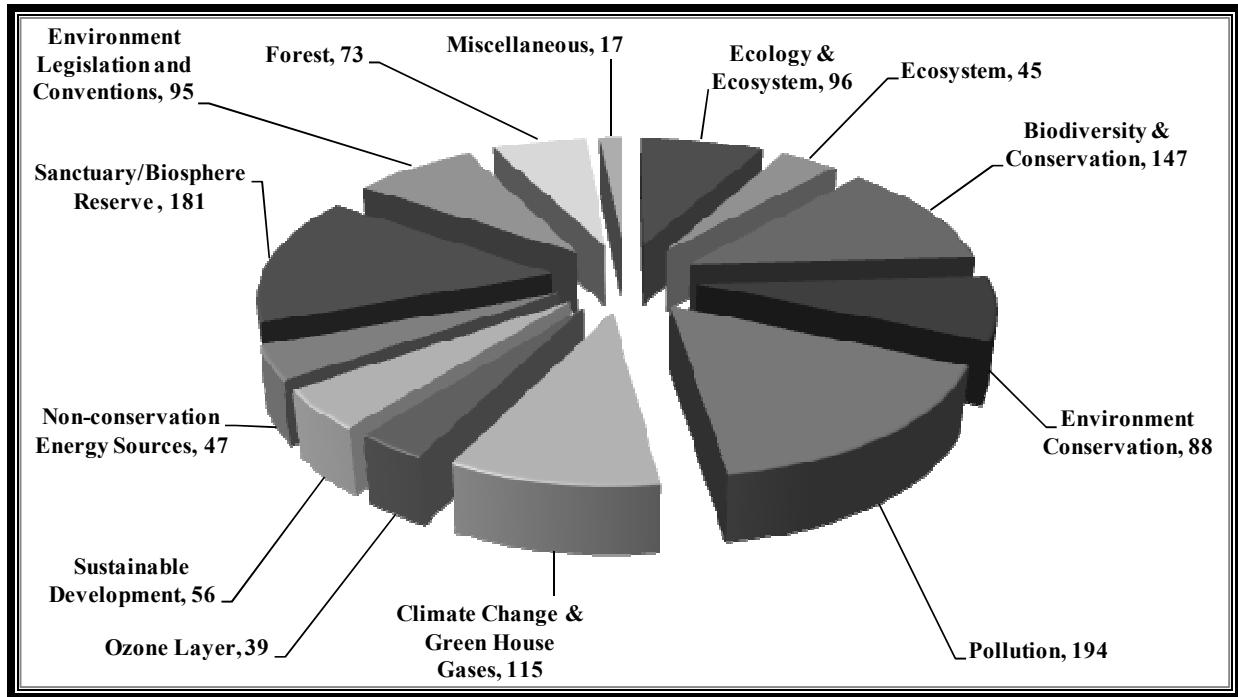
S.No.	Exam Name And Year	Total Exam Papers	Environment & Ecology	
	Union Public Service Commission			
A.	UPSC I.A.S. (Pre)			
	Year 1993-2010	18×150 = 2700	209	
	Year 2011-2023	13×100 = 1300		
	UP Public Service Commission			
B.	UP P.C.S. (Pre)			
	Year 1991-1997	8 × 120 = 960	198	
	Year 1998-2023	26 × 150 = 3900		
	Year 2004 Spl., 2008 Spl., 2015 (Re-Exam)	3 × 150 = 450		
C.	UP P.C.S. (Mains)			
	Year 2002-2017 (2002, 2003 in 1-1 Paper & 2004-2017 in 2-2 Paper)	30 × 150 = 4500	95	
	Year 2004 Spl., 2008 Spl. (Every Year Two Papers)	4 × 150 = 600		
D.	UP UDA/LDA/RO/ARO (Pre & Mains) Exam.			
	U.P. UDA/LDA (Pre) 2001	1 × 150 = 150	57	
	U.P. UDA/LDA (Pre) 2006	1 × 100 = 100		
	U.P. RO/ARO (Pre) 2010	1 × 120 = 120		
	U.P. RO/ARO (Pre) 2010 Spl.	1 × 140 = 140		
	U.P. RO/ARO (Pre) 2013	1 × 140 = 140		
	U.P. RO/ARO (Pre) 2014	1 × 140 = 140		
	U.P. RO/ARO (Pre) 2016	1 × 140 = 140		
	U.P. RO/ARO (Pre) 2017	1 × 140 = 140		
	U.P. RO/ARO (Pre) 2016 (Re. Exam 2020)	1 × 140 = 140		
	U.P. RO/ARO (Pre) 2021	1 × 140 = 140		
	U.P. RO/ARO (Mains) 2010	1 × 120 = 120	22	
	U.P. RO/ARO (Mains) 2010 Spl.	1 × 120 = 120		
	U.P. RO/ARO (Mains) 2013	1 × 120 = 120		
	U.P. RO/ARO (Mains) 2014	1 × 120 = 120		
	U.P. RO/ARO (Mains) 2017	1 × 120 = 120		
	U.P. RO/ARO (Mains) 2016	1 × 120 = 120		
	U.P. RO/ARO (Mains) 2021	1 × 120 = 120		
E.	UP Lower Subordinate (Pre & Mains) Exam.			
	U.P. Lower Subordinate (Pre) 1998	1 × 100 = 100	34	
	U.P. Lower Subordinate (Pre) 2002	1 × 100 = 100		
	U.P. Lower Subordinate (Pre) 2002 Spl.	1 × 100 = 100		
	U.P. Lower Subordinate (Pre) 2003	1 × 100 = 100		
	U.P. Lower Subordinate (Pre) 2004	1 × 100 = 100		
	U.P. Lower Subordinate (Pre) 2004 Spl.	1 × 100 = 100		
	U.P. Lower Subordinate (Pre) 2008	1 × 100 = 100		
	U.P. Lower Subordinate (Pre) 2009	1 × 100 = 100		
	U.P. Lower Subordinate (Pre) 2013	1 × 150 = 150		
	U.P. Lower Subordinate (Pre) 2015	1 × 150 = 150		
	U.P. Lower Subordinate (Mains) 2013	1 × 120 = 120		
	U.P. Lower Subordinate (Mains) 2015	1 × 120 = 120		
F.	UP PSC ACF/RFO Exam			
	U.P. PSC ACF Exam 2013	3 × 150 = 450		68
	U.P. PSC ACF Exam 2015, 2017, 2018, 2019, 2020, 2021	14 × 150 = 2100		

G.	UP PSC AE Exam		
	UP PSC AE Exam 2004, 2007(I), 2007(II), 2008, 2011, 2013, 2019, 2021	$8 \times 25 = 200$	9
H.	UP PSC (J) & APO Exam		
	UP PSC (J) 2003, 2006, 2012, 2013, 2015, 2016, 2018,2022	$8 \times 150 = 1200$	23
	UP PSC APO 2002,2006,2007,2007(Spl.),2011,2015, 2018,2022	$8 \times 50 = 400$	14
I.	Uttarakhand Public Service Commission		
	Uttarakhand PSC Exam 2002-2016, 2021	$8 \times 150 = 1200$	31
	Uttarakhand UDA/LDA (Pre) Exam 2007 & 2015	$2 \times 150 = 300$	5
	Uttarakhand RO/ARO (Pre) Exam 2021,2022, 2023	$3 \times 150 = 450$	16
	Uttarakhand UDA/LDA (Mains) Exam 2007, 2016	$2 \times 100 = 200$	6
	Uttarakhand Lower Subordinate (Pre) Exam 2010, 2016, 2021	$3 \times 100 = 300$	14
J.	MP Public Service Commission		
	MP Public Service Commission (Pre) Exam 1990- 2005-06	$14 \times 75 = 1050$	57
	MP Public Service Commission (Pre) Exam 2008-2010	$3 \times 150 = 450$	
	MP Public Service Commission (Pre) Exam 2012- 2023	$12 \times 100 = 1200$	
K.	Chhattisgarh Public Service Commission		
	Chhattisgarh Public Service Commission (Pre) Exam 2003 & 2004-05	$2 \times 75 = 150$	39
	Chhattisgarh Public Service Commission (Pre) Exam 2008	$1 \times 100 = 100$	
	Chhattisgarh Public Service Commission (Pre) Exam 2010-11	$1 \times 150 = 150$	
	Chhattisgarh Public Service Commission (Pre) Exam 2012 - 2022	$11 \times 100 = 1100$	
L.	Rajasthan Public Service Commission		
	Rajasthan Public Service Commission (Pre) Exam 1992- 2012	$12 \times 100 = 1200$	58
	Rajasthan Public Service Commission (Pre) Exam 2013-14, 2015, 2016, 2018, 2021, 2023	$6 \times 150 = 900$	
M.	Bihar Public Service Commission		
	Bihar Public Service Commission (Pre) 38th Exam 1992	$1 \times 100 = 100$	45
	Bihar Public Service Commission (Pre) 39th-69th Exam 1994- 2023 , 66th (Re-Exam) 2020, 67th (Cancel) 2021	$23 \times 150 = 3450$	
N.	Jharkhand Public Service Commission		
	Jharkhand Public Service Commission (Pre) Exam 2003, 2006, 2008, 2010	$4 \times 100 = 400$	17
	Jharkhand Public Service Commission (Pre) Exam 2013 (I, II), 2016 (I, II), 2021 (I, II)	$6 \times 100 = 600$	
O.	Himachal Pradesh Public Service Commission		
	Himachal Pradesh Public Service Commission (Pre) Exam 2010- 2023	$11 \times 100 = 1100$	63
P.	Haryana Public Service Commission		
	Haryana Public Service Commission (Pre) Exam 2014, 2017, 2021, 2022	$4 \times 100 = 400$	21
Q.	Punjab Public Service Commission		
	Punjab Public Service Commission (Pre) 2015, 2018, 2020	$3 \times 100 = 300$	7
R.	Maharashtra Public Service Commission		
	Maharashtra Public Service Commission (Pre) Exam 2015-2021, 2022, 2023	$9 \times 100 = 900$	29
S.	Goa Public Service Commission		
	Goa Public Service Commission (Pre) 2022	$1 \times 75 = 75$	2
T.	Gujarat Public Service Commission		
	Gujarat Public Service Commission (Pre) (Paper-I, II) 2018, 2019, 2021	$6 \times 200 = 1200$	13
U.	Tamil Nadu Public Service Commission		
	Tamil Nadu Public Service Commission (Pre) 2014-2019, 2021	$7 \times 50 = 350$	29

V.	Andhra Pradesh Public Service Commission		
	Andhra Pradesh Public Service Commission (Pre) (Group-I, Group-II) 2017, 2019, 2021	$4 \times 150 = 600$	18
W.	Karnataka Public Service Commission		
	Karnataka Public Service Commission (Pre) 2020	$1 \times 100 = 100$	1
X.	Kerala Public Service Commission		
	Kerala Public Service Commission (Pre) 2020 (Paper-I) (Paper-II)	$1 \times 100 = 100$ $1 \times 70 = 70$	3
Y.	Odissa Public Service Commission		
	Odissa Public Service Commission (Pre) 2018, 2020, 2021, 2022	$4 \times 100 = 400$	6
Z.	Telangana State Public Service Commission		
	Telangana State Public Service Commission (Pre) 2016, 2017, 2022, 2023	$4 \times 150 = 600$	11
AA.	West Bengal Public Service Commission		
	West Bengal Public Service Commission (Pre) 2015, 2016, 2017, 2018, 2019, 2021, 2022	$7 \times 700 = 700$	21
AB.	Arunachal Pradesh Public Service Commission		
	Arunachal Pradesh Public Service Commission (Pre) 2021	$1 \times 100 = 100$	3
AC.	Assam Public Service Commission		
	Assam Public Service Commission (Pre) 2021, 2022	$2 \times 100 = 200$	3
AD.	Manipur Public Service Commission		
	Manipur Public Service Commission (Pre) 2013, 2016, 2023	$3 \times 200 = 600$	9
AE.	Sikkim Public Service Commission		
	Sikkim Public Service Commission (Pre) 2017, 2022	$2 \times 100 = 200$	6
AF.	Meghalaya Public Service Commission		
	Meghalaya Public Service Commission (Pre) 2020	$1 \times 200 = 200$	1
AG.	Mizoram Public Service Commission		
	Mizoram Public Service Commission (Pre) 2015, 2017, 2018, 2021, 2022	$5 \times 100 = 500$	13
AH.	Nagaland Public Service Commission		
	Nagaland Public Service Commission (Pre) 2017, 2018, 2019	$3 \times 200 = 600$	4
AI.	Tripura Public Service Commission		
	Tripura Public Service Commission (Pre) 2019, 2020, 2022	$3 \times 200 = 600$	12
AJ.	J&K Public Service Commission		
	J&K Public Service Commission (Pre) 2018, 2022, 2023	$4 \times 100 = 400$	21
	Total Papers = 373		1313

Note : After due analysis of the above question papers, **1313 questions** related to **Environment and Ecology** have been presented chapter wise. Questions of repetitive and similar nature have been included so that the technique of asking questions can benefit the competitors.

Trend Analysis of Previous Year Environment Papers through Pie Chart and Bar Graph



01.

Ecology & Ecosystem

A. Ecology

1. Who of the following used the term 'deep ecology' for the first time?

- (a) E.P. Odum (b) C. Raunkiaer
(c) F.E. Clements (d) Arne Naess

UPPCS (Mains) G.S 2014

Ans : (d) In 1973, Norwegian philosopher and mountaineer Arne Naess introduced the phrase "Deep Ecology" to environmental literature. The word deep in part referred to the level of questioning of our purposes and values when arguing in environmental conflicts.

2. Which of the following is the largest ecological unit ?

- (a) Organism (b) Population
(c) Biome (d) Ecosystem

Tripura TPCS (TCS) -2019

Ans. (c) : A "Biome" is a plant and animal community that covers a large geographical area. The boundaries of different biomes on land are determined mainly by climate. Therefore, a biome can be defined as the total assemblage of plant and animal species interacting within specific conditions. These include rainfall, temperature, humidity and soil conditions. Some of the major biomes of the world are: forest, grassland, desert and tundra biomes.

Biomes can be classified into three types, namely terrestrial, fresh water biomes and marine biomes.

- **Terrestrial biomes** include grasslands, deserts, tropical forest.
- **Fresh water biomes** include large lakes, tropical and sub tropical coaster rivers.
- **Marine biomes** include continental shelves, tropical coral and kelp forests.

3. The concept of 'Ecological Transition' was first used by

- (a) Elton (b) Bennett
(c) Berkeley (d) Ratzel

UPPCS (Pre) G.S. 2020

Ans : (b) The concept of 'Ecological Transition' was first used by Bennett. Bennett defines, Ecological Transition as the development of an anthropocentric orientation toward the natural world that emerged in the western renaissance but has since characterized every civilization and nation.

4. 'Ecology' is the study of relationship between-

- (a) Organism and Environment
(b) Man and Forest
(c) Soil and Water
(d) Husband and Wife

UP RO/ARO (Pre) G.S 2014

Ans : (a) Ecology is the study of the relationship between living organisms (including humans) and their physical environment. It seeks to understand the vital connections between plants, animals and the

world around them. Ecology also provides information about the benefits of ecosystems and how we can use earth's resources in ways that leave the environment healthy for future generations. Ramdeo Misra is revered as the father of ecology in India.

5. Ecology takes into account of:

- (a) Environmental factors only
(b) Effects of plants on environment
(c) Plant adaptation
(d) Relationship between organism and their environment

Himanchal PCS (Pre) 2011

Ans : (d) Kindly refer the explanation of the above question.

6. Ecology is the study of-

- (a) Earth (b) Environment
(c) Space (d) Sky

Uttarakhand PCS (M) 2004-05

Ans : (b) Kindly refer the explanation of the above question.

7. The entire sequence of communities, that successively change in a given area are called as

- (a) Ecological succession
(b) Sere
(c) Community dynamics
(d) Pyramid of biomass

UPPCS (Pre) G.S. 2020

Ans. (b) : The entire sequence of communities that successively change in a given area are called as sere. The individual transitional communities are termed seral stages or seral communities.

8. The actual location or place where an organism lives is called

- (a) Habitat (b) Ecosystem
(c) Niche (d) Biome
(e) None of the above/More than one of the above

BPSC (Pre) G.S. 2019

Ans : (a) The surroundings, where animals live are called their habitat. Habitat means a dwelling place. The main components of habitat are shelter, water, food and space. The organism depends on their habitat for their food, water, air, shelter and other needs.

9. The natural place of an organism or community is known as-

- (a) Niche (b) Biome
(c) Habitat (d) Habit

Mizoram PSC (CCE) Pre-2021 Paper-I

Ans. (c) : Kindly refer the explanation of above question.

10. Which steps of taxons are followed for classification of animals?

- (a) Species → Genus → Order → Class → Family → Phylum → Kingdom

- (b) Kingdom → Genus → Order → Species → Phylum → Class → Family
 (c) Genus → Species → Phylum → Class → Order → Family → Kingdom
 (d) Kingdom → Phylum → Class → Order → Family → Genus → Species

Maharashtra PSC 2022

Ans. (d) : The steps of taxons followed for classification of animals are:-

Kingdom → Phylum → class → order → family → Genus → species.

11. In, lichen, a chlorophyll-containing partner, _____ live together.

- (a) Aungus and a bacterium
 (b) Algae and a virus
 (c) Algae and a fungus
 (d) More than one of the above
 (e) None of the above

68th BPS 2022

Ans. (c): Lichen is symbiotic relationship of algae and fungus where algae is chlorophyll containing partner of fungus. The fungus provide shelter, water and minerals to algae. In return, the algae provides food which is prepared by it through photosynthesis.

12. With reference to ecological niche, which of the following statements is/are correct?

1. It represents the range of conditions that it can tolerate the resources it utilizes and its functional role in ecological system.
2. Each species has a distinct niche.

Select the correct answer from the code given below:

Code:

- (a) Neither 1 nor 2 (b) Both 1 and 2
 (c) Only 2 (d) Only 1

UPPCS Pre 2022

Ans. (b): The term ecological niche describes the role of an organism, which it plays in a community. Species niche encompasses both the physical and environmental conditions it requires, like temperature or terrain and the interactions it has with other species, like predation or competition. Hence 1st statement is correct. No two species can have the exact same niche; otherwise, they would be in direct competition for resources with one another. Hence 2nd statement is also correct.

13. Homeostasis means:

- (a) A tendency of an ecosystem to resist change and to remain in a state of equilibrium
 (b) A property of an ecosystem to withstand all kinds of environmental changes
 (c) A characteristic of an ecosystem to convert into changes of pollution
 (d) An ecosystem never respond to environmental change

J & K PSC 2021 Paper-(I)

Ans. (a): Maintenance of a constant internal environment by the organisms is known as homeostasis. Homeostasis is a term coined to describe the physical and chemical parameters that an organism must maintain to allow the proper functioning of its

component cells, tissues, organs and organ systems. It is often seen as a resistance to changes in the external environment, furthermore, Homeostasis is a self-regulating process that regulates internal variables necessary to sustain life.

14. The maintenance of a constant internal environment is called _____.

- (a) Symbiosis (b) Heterobeltiosis
 (c) Homeostasis (d) Commensalisms

Manipur PSC-2016

Ans. (c) : Kindly refer the explanation of above question.

15. Phytotron is a facility to-

- (a) Grow plants under disease-free conditions
 (b) Conserve endangered species of plants
 (c) Grow plants under controlled conditions
 (d) Induce mutations

I.A.S. (Pre) G.S. 2000

Ans : (c) A Phytotron is a facility to grow plants under controlled condition. It is an enclosed research greenhouse used for studying interactions between plants and the environment.

16. In which of the following ecosystems the species diversity is relatively higher?

- (a) Deep sea (b) Tropical rain forest
 (c) Coral reefs (d) Desert

UPPCS (Pre) G.S. 2018

Ans : (b) The tropical rain forests have the largest terrestrial biodiversity coral reefs are known as tropical rainforest of oceans.

17. Which of the following is/are unique characteristic/characteristics of equatorial forests?

1. Presence of tall closely set trees with crowns forming a continuous canopy
2. Co-existence of a large number of species
3. Presence of numerous varieties of epiphytes

Select the correct answer using the code given below:

- (a) 1 only (b) 2 and 3 only
 (c) 1 and 3 only (d) 1, 2 and 3

IAS (Pre) G.S 2013

Ans: (d) The equatorial forest region is found on both sides of the equator and falls in the Torrid Zone. The climate is hot and wet in this region as it receives direct rays of sun throughout the year. Tall, closely set trees are characteristics of equatorial forest. The upper portion of canopy often supports rich epiphytes (a plant that grows on other plant). Many animals such as monkey, chimpanzees, flying fox, flying squirrels, crocodile alligators, snakes, turtles, anacondas, macaws, parrots and hummingbirds are found in equatorial forest region. Therefore (d) is the correct answer.

18. Consider the following States:

1. Arunachal Pradesh
2. Himachal Pradesh
3. Mizoram

In which of the following states do “Tropical Wet Evergreen Forests” occur?

- (a) 1 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

IAS (Pre) G.S 2015

Ans: (c) Tropical wet evergreen forests are found in warm and humid areas with an annual precipitation of over 200 cm and mean annual temperature above 22°C. Tropical evergreen forests are well stratified with layers closer to the ground and are covered with shrubs and creepers with short structured trees followed by tall variety of trees. In these forests, trees reach great heights up to 60 m or above. In India, these forests are found in the western slope of the Western Ghats, hills of the Northeastern region and the Andaman and Nicobar Islands. Therefore, (c) is the correct answer.

19. Which one of the following has an evergreen forest?

- (a) Malwa Plateau
(b) Eastern Ghats
(c) Western Ghats
(d) Chotanagpur Plateau

UPPCS (Pre) G.S 2015

Ans: (c) Kindly refer the explanation of the above question.

20. In India, in which one of the following types of forests is teak a dominant tree species?

- (a) Tropical moist deciduous forest
(b) Tropical rain forest
(c) Tropical thorn scrub forest
(d) Temperate forest with grasslands

IAS (Pre) G.S 2015

Ans: (a) Tropical moist deciduous forests are the monsoon forests found in the large part of India, northern Australia and in Central America. These regions experience seasonal changes. Trees shed their leaves in the dry season to conserve water. The hardwood trees found in these forests are sal, teak, neem and shisham, which are extremely useful for making furniture, transport and constructional materials.

21. In which of the following continents, the tropical deciduous forests are most extensive?

- (a) Africa (b) Asia
(c) Australia (d) South America

UPRO/ARO (Pre) G.S 2014

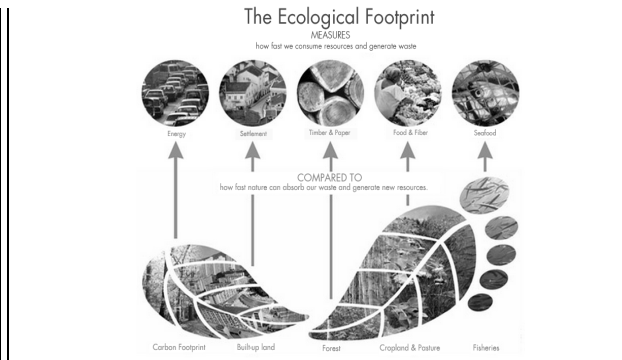
Ans: (b) Kindly refer the explanation of the above question.

22. The unit to measure 'Ecological Footprint' is:

- (a) Global Hectare (b) Nanometer
(c) Hopes cubic feet (d) Cubic ton

UP RO/ARO (Pre) G.S 2016

Ans : (a). Ecological footprint measures and individual or population's demand for natural ecosystems supply of resources and services. Ecological footprint is impact of human activities measured in terms of the area of biologically productive and water required to produce the goods consumed and to assimilate the wastes generates. It is measured in Global Hectare.



23. Which among the following is the unit of measurement of the "Ecological Footprint"?

- (a) Global Hectare (b) Gallon Per Capita
(c) Cubic Meter (d) Man Hour

OPSC (OCS) Pre 2018 Paper- I

Ans. (a): Kindly refer the explanation of above question.

24. Ecological footprint is a method of gauging the:

- (a) Biodiversity of region
(b) Human dependence on natural resources
(c) Volume of human migration
(d) Amount of carbon dioxide emitted

J & K PSC 2021 Paper-(I)

Ans. (b): Kindly refer the explanation of the above question.

25. The minimum area of the land required to completely sustain the life of the person is called his-

- (a) Biota footprint (b) Ecological footprint
(c) Biome (d) Niche

UPPCS (Pre) G.S 2012

Ans : (b) Kindly refer the explanation of the above question.

26. "Ecology is permanent economy" is the slogan of which movement?

- (a) Appiko Movement
(b) Narmada Bachao Andolan
(c) Chipko Movement
(d) None of the above

UPPCS (Mains) G.S 2007

Ans : (c) "Ecology is the permanent economy" is the slogan of Chipko movement. The slogan was coined by Sundaralal Bahuguna.

The Chipko movement was a non-violent agitation in 1973 that was aimed at protection and conservation of trees. It originated in Chamoli district of Uttarakhand in 1973.

27. Which one of the following is one of the main causes of ecological imbalance in India?

- (a) Deforestation (b) Desertification
(c) Floods and famines (d) Rainfall variations

RAS/RTS (Pre) G.S 2012

Ans:(a) Kindly refer the explanation of the above question.

28. Which of the following is an act that disturbs the ecological balance?

- (a) Lumbering (b) Social Forestry
(c) Van mahotsav (d) Afforestation

UP RO/ARO (Pre) G.S 2014

Ans : (a) Main factors responsible for ecological imbalance in India are degradation of land and soil erosion, deforestation, faulty utilization of water resources, environmental problems from faulty mining practices, industrial and atmospheric pollution. Lumbering which is the felling of trees for timber has been identified as one of the primary occupations that lead to deforestation.

29. Which of the following statements is correct about Synecology?

- (a) It is the study of relations of the different communities with the environment
- (b) It is the study of complex traditional relationships of bio communities
- (c) This is basically the natural habitat ecology
- (d) It is mainly social ecology

UPPCS (Pre.) G.S. 1999

Ans : (b) "Synecology" is the study of group of organisms in relation to their environment. It is concerned with study of the highest level of biological organization. It is also called as community ecology.

30. Which of the following factors are included in chemical environment?

- (A) Temperature and soil
- (B) Water and soil
- (C) Vegetation and water
- (D) Human functions and Biological components

Which of the statements given above is/are correct?

- (a) Only (A) and (B)
- (b) Only (B)
- (c) Only (C) and (D)
- (d) None of the above

MH PSC (Pre) 2022

Ans. (c) : factors included in chemical environment are vegetation and water, Human functions and Biological components.

31. Which of the following is important for speciation?

- (a) Seasonal isolation
- (b) Reproductive isolation
- (c) Behavioral isolation
- (d) Temporal isolation

Mizoram PSC (Pre) 2023

Ans. (b) : Speciation is the process within evolution that leads to the formation of new, distinct species that are reproductively isolated from one another. Reproductive isolation is important for speciation.

32. Which of the following indicator species are not found in Srivenkateshwara National Park of Andhra Pradesh?

- (a) Wood stork
- (b) Cycas beddomei
- (c) Red sanders
- (d) Slender loris

APPSC (Pre) 2023

Ans. (a) : Wood stork indicator species are not found in Srivenkateshwara National Park of Andhra Pradesh. Cycas beddomei, Pretocarpus santalinus (Red sanders), Slender loris, Golden gecko are important indicator species of Srivenkateshwara National Park.

B. Environment & Component

33. Environment Protection Act (EPA) is also known as:

- (a) Umbrella Legislation
- (b) Chhadi Mubarak
- (c) Environment Legislation
- (d) Eco Safety Law

MPPCS (Pre) G.S 2013

Ans : (a) In wake of the Bhopal tragedy, the Government of India enacted Environment (Protection) Act, 1986 as umbrella legislation designed to coordination the environmental activities between Central and State Governments, which were earlier dealt with laws such as Water Act, Air Act etc.

34. Low nutritious concentration reservoir is found in-

- (a) Littoral zone
- (b) Oligotrophic zone
- (c) Neritic zone
- (d) Floor zone

Jharkhand PSC (Pre) G.S. 2008

Ans : (b) Reservoirs are those water bodies formed or modified by human activity for specific purposes in order to provide a reliable and controllable resource. Their main use include:- drinking and municipal water supply, industrial and cooling water supply, power generation, agricultural irrigation, river regulation and flood control, commercial and recreational fisheries etc. Oligotrophic zone has very low nutritious concentration.

35. In which environment the annual production of bio-mass is minimal?

- (a) Deep ocean
- (b) Prairie
- (c) Deciduous forest
- (d) Taiga

UPPCS (Pre.) G.S. 2000

Ans : (a) Under deep ocean, the annual production of bio-mass is minimum as compared to the other options given.

36. Which one of the following ecosystem has maximum plant bio mass?

- (a) Tropical deciduous forest
- (b) Tropical rain forest
- (c) Temperate deciduous forest
- (d) Deserts shrubs

UPPCS (Pre) G.S 2017

Ans : (b) Biomass is organic material that comes from plants and animals and it is a renewable source of energy. As discussed earlier, tropical rain forest provides maximum biomass.

37. The number of organisms that can be supported by the environment in a given area is known as:

- (a) Population
- (b) Carrying Capacity
- (c) Pyramid of number or biomass

Uttarakhand PCS (Pre) 2014

Assam PSC (CCE) Pre 2021

Ans : (b) Carrying capacity is the maximum population size of a species that the environment can sustain indefinitely on available resources. Hence (b) is the correct answer.

38. Which of the following is the largest ecosystem of the earth?

- (a) Hydrosphere (b) Biome
(c) Lithosphere (d) Biosphere

UPPSC RO/ARO (Pre) 2017

Ans : (d) Biosphere is the largest ecosystem of earth. The biosphere is made up of parts of earth where life exists. The biosphere extends from the deepest root systems of trees to the dark environment of ocean trenches, to lush rain forests and high mountaintops.

39. Which of the following trees is dangerous for environment?

- (a) Banana (b) Eucalyptus
(c) Babool (d) Neem

UPPCS (Pre) G.S 2022

Ans. (b) : Eucalyptus tree is considered to be environmental hazard. These trees are dangerous for environment.

40. Which one of the following tree is considered to be an environmental hazard?

- (a) Babul (b) Amaltas
(c) Neem (d) Eucalyptus

UPPCS (Pre) G.S 2005

Ans : (d) Kindly refer the explanation of the above question.

41. Which of the following forests is known as the "lungs of the planet earth"?

- (a) Taiga forest
(b) Tundra forest
(c) Amazon rain forest
(d) Rain forest of North –East India

RAS/RTS (Pre) G.S 2015

Ans : (c) Amazon rainforests are often called the "lungs of the planet" because they generally draw in carbon dioxide and breathe out oxygen. However, the amount of carbon dioxide they absorb or produce varies hugely with year-to-year variations in the climate.

42. In the marine environment, the main primary producers are:

- (a) Phyto Planktons
(b) Seaweeds
(c) Marine Angiosperms
(d) Aquatic Bryophytes

UPPCS (Mains) G.S 2005

Ans : (a) Phytoplankton serves as the major primary producers in the marine ecosystem. These microscopic single celled plants, bacteria, algae and other organisms harvest sunlight through photosynthesis and store it as chemical energy before becoming food for tiny creatures called zooplankton. The zooplankton falls prey to larger animals like small fish and jellyfish and these in turn become meals for larger fish, squids, sharks and marine mammals. The phytoplankton rest at the bottom of these food chains because all the energy used by these larger organisms comes from them.

43. Which of the following tree is not Eco-Friendly?

- (a) Babul (b) Eucalyptus
(c) Neem (d) Pipal

UPPCS (Mains) G.S 2011
UP UDA/LDA (Mains) 2010

Ans : (b) Kindly refer the explanation of above question.

44. The concept of ecological niche was enunciated by-

- (a) Greenels (b) Darwin
(c) E. Rodum (d) C.C.Park

UPPCS (Pre) G.S 2005

Ans : (a) The concept of ecological Niche was enunciated by Joseph Greenels.

45. In the ecosystem the durable bio group is called-

- (a) Ecotone (b) Succession
(c) Climax (d) Siril

UPPCS (Main) G.S. 2002

Ans : (a) In the ecosystem, the durable bio group is called "Ecotone". An ecotone is an area that acts as a boundary or a transition between two ecosystems. Examples of ecotone are marshlands (between dry and wet ecosystems), mangrove forests (between terrestrial and marine ecosystems), grasslands (between desert and forest) and estuaries (between saltwater and freshwater).

46. Which of the following is not an example of an Ecotone :

- (a) River Bank (b) Teak Forest
(c) Mangroves (d) Marshland

TS PSC Group-I & II Pre-2017

Ans. (b): Kindly refer the explanation of the above question.

47. The transitional area between two living organism is known as-

- (a) Ecozone (b) Ecophos
(c) Ecotone (d) Ecotype

Maharashtra PSC (Pre) G.S, 2018

Ans : (c) Kindly refer the explanation of the above question.

48. The transitional zone between two distinct communities is known as:

- (a) Ecotype (b) Ecade
(c) Ecosphere (d) Ecotone

UPPCS (Pre) GS, 2012

Ans : (d) Kindly refer the explanation of the above question.

49. Which one of the following terms describes not only the physical space occupied by an organism, but also its functional role in the community of organisms?

- (a) Ecotone (b) Ecological niche
(c) Habitat (d) Home range

IAS (Pre) G.S 2013

Ans : (b) The functional characteristic of a species in its habitat is referred as "Niche". Each species has a distinct niche. The concept of ecological niche was enunciated by Joseph Grinnell. The term niche means the sum of all the activities and relationships of a species by which it uses the resources in its habitat for its survival and reproduction. The most important resources available in the niches of animals are food and shelter while in case of plants, they are moisture and nutrients (phosphorus and nitrogen).

50. With reference to ecological niche, which of the following statements is/are correct?

1. It represents the range of conditions that it can tolerate the resources it utilizes and its functional role in ecological system
2. Each species has a distinct niche.

Select the correct answer from the code given below:

Code

- (a) Only 1 (b) Both 1 and 2
(c) Only 2 (d) Neither 1 nor 2

UPPCS (Pre) G.S 2022

Ans. (b) : Kindly refer the explanation of the above question.

51. Which is the most stable ecosystem?

- (a) Marine (b) Forest
(c) Mountain (d) Desert

UPPCS (Pre) G.S 2018, 2013

RAS/RTS (Pre) G.S 2008

UP RO/ARO (Pre) G.S 2010

Ans : (a) A main characteristic of a stable ecosystem is biodiversity. The more diverse an ecosystem is, more resilient. If the ecosystem can recover fast and continue to function after something happens, it can be considered stable. Marine ecosystem is stable in their chemical composition due to being saline. In addition, dissolved oxygen, temperature of the ocean remains more or less constant compared to other ecosystems. Hence marine ecosystem is most stable ecosystem. Marine ecosystem is the largest ecosystem.

52. Which one of the following is the largest ecosystem?

- (a) Forest ecosystem (b) Marine ecosystem
(c) Desert ecosystem (d) Pond ecosystem

Mizoram PSC (CCE) Pre-2021 Paper-I

Ans. (b): Kindly refer the explanation of above question.

53. Which one of the following ecosystems covers the largest area of the earth's surface?

- (a) Desert Ecosystem
(b) Grassland Ecosystem
(c) Mountain Ecosystem
(d) Marine Ecosystem

UP Lower Sub. (Spl) (Pre) 2003

UPPCS (Pre) G.S 2002

UPPCS Asst. Forest Conservator Exam, 2013

Ans : (d) Kindly refer the explanation of the above question.

54. Which one of the following is the largest ecosystem of the world?

- (a) Ocean (b) Grassland
(c) Forest (d) Mountains

UPPCS (Pre) G.S 2014

Ans : (a) Six major ecosystems of the world are-

1. Fresh water ecosystem
2. Marine (ocean) ecosystem
3. Grassland ecosystem
4. Forest ecosystem
5. Desert ecosystem
6. Cropland ecosystem

The ocean ecosystem is the largest ecosystem of the world as it covers 70 percent of earth's geographical area.

55. Given below are two statements, one is labelled as Assertion (A) and other as Reason (R).

Assertion (A): Various components of an ecosystem are non interdependent.

Reason (R) : Human activities have the impacts on the environment.

Choose the correct answer from the code given below.

- (a) Both (A) and (R) are true and (R) is the correct explanation of (A)
(b) Both (A) and (R) are true and (R) is not the correct explanation of (A)
(c) (A) is true but (R) is false
(d) (A) is false but (R) is true

UPPCS RO-ARO (Mains) 2016

Ans. (d) : Direct causes of deforestation are loss of biodiversity, soil erosion and global climate change. Species invasion is not at all related to deforestation.

56. In ecosystem terminology, who are the major producers in a terrestrial ecosystem?

- (a) Human beings
(b) Phytoplankton
(c) Herbaceous and woody plants
(d) All the given options

APPSC GROUP-I (7-5-2017)

Ans. (c) : Herbaceous and woody plants are the major producers in a terrestrial ecosystem. Herbaceous and woody plants are present in the terrestrial ecosystem. Herbaceous plants have very flexible stems. Woody plants include trees and shrubs. They convert solar energy into chemical energy through photosynthesis in which carbon dioxide and water are used in presence of sunlight to synthesize nutrients. Such carbohydrates in the form of glucose releases oxygen into the atmosphere.

57. Which one of the following is not a sub-category of terrestrial ecosystem?

- (a) Mountain ecosystem
(b) Marine ecosystem
(c) Lowland ecosystem
(d) Semi-arid ecosystem

UPPCS RO/ARO Mains 2021

Ans. (b) : On the basis of many classification schemes developed over time, there are six types of terrestrial ecosystems. These include taiga, tundra, deciduous forest, grasslands, tropical rain forests and deserts. Mountain, Lowland and Semi- Arid ecosystem are sub categories of terrestrial ecosystem.

58. The environment modified by human activities is called

- (a) Natural environment
- (b) Anthropogenic environment
- (c) Urban environment
- (d) Modern environment

UPPCS (Pre) G.S, 2019

Ans : (b) The environment modified by human activities is called Anthropogenic environment.

59. Which of the following components of the ecosystem acts as intermediary between biotic and abiotic kingdoms?

- (a) Producer
- (b) Consumer
- (c) Decomposer
- (d) The habitat

UPPSC ACF (Pre) G.S. 2017

Ans : (a) There are two components of ecosystems namely "Biotic" and "Abiotic" component. Biotic component includes biotic factors such as producers, consumers, decomposers etc. Producer includes green plants. Abiotic component includes light, water, soil nutrient etc. The driving force of ecosystem is solar energy. Solar energy is directly utilized by producers to prepare their food and all other organisms are directly or indirectly depend on plants for food. Thus producer act as intermediary between biotic and abiotic components.

60. Which of the following is not a biotic component of the ecosystem?

- (a) Plants
- (b) Bacteria
- (c) Animal
- (d) Air

RAS/RTS (Pre) G.S 2015

Ans : (d) Kindly refer the explanation of the above question.

61. The primary source of energy in Eco-body is-

- (a) Energy emitted by fermentation
- (b) Preserved vegetable sugar
- (c) Solar energy
- (d) None of the above

UPPCS (Mains) G.S 2015

Ans : (c) Kindly refer the explanation of the above question.

62. Driving force for an ecosystem is:

- (a) Solar energy
- (b) Vegetation
- (c) Producers
- (d) Biomass

Himanchal PCS (Pre) 2014

Ans : (a) Kindly refer the explanation of the above question.

63. Work as intermediaries between biotic and abiotic components:

- (a) Parasite
- (b) Decomposers
- (c) Producers
- (d) Consumers

UPPSC RO/ARO Mains 2017

Ans : (c) Kindly refer the explanation of the above question.

64. Among the biotic component of the ecosystem, the producer system is-

- (a) Cow
- (b) Peacock
- (c) Tiger
- (d) Green plants

UPPCS (Pre) G.S 2013

Ans : (d) Kindly refer the explanation of the above question.

65. What is true about ecosystem?

- (a) Primary consumers are least dependent upon producer
- (b) Primary consumers are out-number producers
- (c) Producers are more than primary consumers
- (d) Secondary consumers are the largest and most powerful

UPPCS (Pre) G.S, 2019

Ans : (c) Ecosystem is formed by the interaction of biotic and abiotic components present in the environment. It is a open system, because both matter and energy are exchanged between the system and its surrounding environment. In an ecosystem food availability is the main factor. As we move for one trophic level to next trophic level in food chain the number of organisms generally decrease. Thus primary producers outnumber the primary consumers which in turn outnumber secondary consumers and secondary consumers and secondary consumers outnumber the tertiary consumers.

66. Which one of the following is not true about the eco-system?

- (a) It represents all living organism and physical environment in any given space-time unit.
- (b) It is a functional unit.
- (c) It has own productivity.
- (d) It is a closed system.

UPPCS (Pre) (Re-Exam) 2015

UPPCS (Mains) 2014

Ans : (d) Kindly refer the explanation of the above question.

67. Which one of the following is not a biotic component of an ecosystem?

- (a) Air
- (b) Plant
- (c) Bacteria
- (d) Animals

RAS/RTS (Pre) G.S 2013

Ans : (a) Kindly refer the explanation of the above question.

68. With reference to the food chains in ecosystems, which of the following kinds of organism is/are known as decomposer organism/ organisms?

1. Virus
2. Fungi
3. Bacteria

Select the correct answer using the codes given below.

- (a) 1 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

IAS (Pre) G.S 2013

Ans : (b) Consumers are directly or indirectly dependent on producers for their food. Decomposers include micro-organism such as bacteria and fungi.

69. Which one of the following is the best description of the term 'ecosystem'?

- (a) A community of organism interacting with one another
(b) That part of the Earth, which is inhabited by living organisms
(c) A community of organisms together with the environment in which they live
(d) The flora and fauna of a geographical area

IAS (Pre) G.S 2015

Ans : (c) The term "Ecosystem" was first proposed by A.G. Tansley in 1935. Ecosystem is defined as a system formed by the community and the environment. Ecosystem is an interacting unit that includes both biological community as well as non-living components of an area. The living and non-living components of an ecosystem interact among themselves and function as a unit, which gets evident during the process of energy flow, decomposition, productivity and nutrient cycling. The few examples of ecosystems are ponds, forest, grassland etc. Crop fields and an aquarium may also be considered as man-made ecosystems. They are called as "Anthropogenic Biome".

70. The term "Ecosystem" was coined by

- (a) E.P. Odum (b) Arthur G. Tansley
(c) Charles Darwin (d) Stephen Hawking

Mizoram PSC CCE Pre 2018 Paper I

Ans. (b) : Kindly refer the explanation of above question.

71. The term 'Ecosystem' was proposed by-

- (a) G Taylor (b) E. hartigan
(c) D.R. Stoddart (d) Tansley

Uttarakhand RO/ARO, 2016

Uttarakhand PSC (Pre) G.S 2005

UPPCS (Mains) G.S 1st Paper, 2006

Ans : (d) Kindly refer the explanation of the above question.

72. Which of the following ecosystems is transformed by human?

- (a) Forest (b) Desert
(c) Agricultural land (d) Grassland

UPPSC ACF (Pre) G.S. 2017

Ans : (c) Kindly refer the explanation of the above question.

73. Which of the following is an example of anthropogenic biome?

- (a) Fresh water (b) Grassland
(c) Rain forest (d) Cropland

UPPCS (Pre) G.S. 2018

Ans : (d) Kindly refer the explanation of the above question.

74. Which of the following is an artificial ecosystem?

- (a) Rice field (b) Forest
(c) Grassland (d) Lake

UPPCS (Pre) G.S 2016

Jharkhand PSC (Pre) G.S 2013

Ans : (a) Kindly refer the explanation of the above question.

75. Environment refers to :

- (a) The natural world of land, water, air, plants and animals that exists around it.
(b) The sum total of conditions which surround human beings at a given point of time.
(c) The interacting system of physical, biological and cultural elements which are interlinked.
(d) All the above

UPPCS (Pre) G.S 2006

Ans : (d) Environment refers to all external conditions in which an organism lives. It comes from the French word "Environ", which means to surround. It is used to describe everything such as places, things, people, nature etc. It also includes thing created by human beings. As per the Environment (Protection) Act, 1986, 'Environment' includes water, air and land and the inter-relationship, which exists among water, air, land and human beings, other living creatures, plants, micro-organism and property. Hence (d) is the correct answer.

76. Environment is a composite state of-

- (a) Biotic factors
(b) Physiographic factors
(c) Abiotic factors
(d) All the above

BPSC (Pre) GS 2011

Ans: (d) Environment is defined as the total planetary inheritance and the totality of all the resources. It includes all the biotic and abiotic factors that influence each other. All living things such as birds, animals, plants, forests and fisheries etc are biotic elements whereas air, water, land and sunlight etc are abiotic elements.

77. Which of the statement is true?

- (a) Benthic refers to the floor of the sea and benthos refers to plants and animals that live there.
(b) Benthos refers to the floor of the sea and benthic refers to plants and animals that live there.
(c) Benthos refers to the floor of the sea and benthic refers to animals that live there
(d) Benthos and benthic both refer to animals that live there.

J & K PSC Pre 2022

Ans.(a): The term Benthic is the lowest level of a body of water such as ocean, lake etc.
It also include the sediment surface and some sub-surface layers.
The term Benthos, also known as Benthon is the community of organism that live on, in or near the bottom of sea, river, lake etc.
Hence, option (a) is correct.

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

Assertion (A) : Phytoplankton grow in abundance in the limnetic zone.

Reason (R): Limnetic zone is open water zone.

Select the correct answer from the code given below:

Code:

- (a) (A) is false but (R) is true
- (b) (A) is true but (R) is false
- (c) Both (A) and (R) are true but (R) is not the correct explanation of (A)
- (d) Both (A) and (R) are true and (R) is the correct explanation of (A)

UPPCS Pre 2022

Ans. (d): The limnetic zone is the open and well-lit area of a freestanding body of freshwater, such as a lake or pond. The limnetic zone is the most photosynthetically-active zone since it is the primary habitat for planktonic species. Because phytoplankton populations are densest here, it is the zone most heavily responsible for oxygen production within the aquatic ecosystem.

Hence both (A) and (R) are correct and (R) is a correct explanation of (A).

79. Which of the following factors are included in chemical environment?

- (A) Temperature and soil
- (B) Water and soil
- (C) Vegetation and water
- (D) Human functions and Biological components

Which of the statements given above is/are correct?

- (a) Only (A) and (B)
- (b) Only (B)
- (c) Only (C) and (D)
- (d) None of the above

Maharashtra PSC 2022

Ans. (d) : Environment can be defined as a sum total of all the living and non-living elements and their effects that influence humans life. The environment can be classified into two categories based of factor which are as follows-

Physical Environment - include temperature, light, precipitation, soil, vegetation, water, biological components, human function etc.

Chemical Environment - includes nutrients, pH, salinity and other chemical in environment.

Hence, option (d) is correct.

80. Some species if eliminated seriously affect the ecosystem. These called

- (a) Blue stone
- (b) Red stone
- (c) Yellow stone
- (d) Keystone

MH PSC (Pre) 2023

Ans. (d): Some species if eliminated seriously affect the ecosystem. These are called keystone species. Keystone species helps define an entire ecosystem, example sea otters, Bees, Large mammalian predators etc.

81. Example of Lotic ecosystem is–

- (a) Swamps
- (b) Ponds
- (c) Rivers
- (d) Marshy area

UPPCS (Pre) 2023

Ans. (c): Lotic Ecosystem: Lotic ecosystem are characterized by flowing waters. Examples including rivers, stream, brooks and springs. Here the oxygen level is higher due to the continually moving waters of the current and the water is clearer.

82. Which of the following is a biotic component?

- (a) Soil
- (b) Air
- (c) Animal
- (d) Water

Himachal PSC (Pre) 2023

Ans. (a) : Animal is a biotic component.

There are two components of ecosystem.

(i) Biotic (ii) Abiotic

The Biotic factors refer to all the living beings present in an ecosystem as-plants, animals bacteria etc. Abiotic factors refer to all the non living components like physical conditions and chemical agents different gases and mineral nutrients. such as-air, water, soil etc.

83. Lithosphere is known as:

- (a) Abiotic component
- (b) Biotic component
- (c) Both (A) and (B)
- (d) Neither (A) nor (B)

Himachal PSC (Pre) 2023

Ans. (a) : Lithosphere is known as Abiotic component
Abiotic factors refers to all the non living things in ecosystem.

84. Ecosystem is a self-regulatory and self-sustained structural and functional with the following processes:

- (a) Productivity
- (b) Decomposition
- (c) Nutrient cycling
- (d) Energy flow

Which of the statements given above is/are correct?

- (a) Only (a)
- (b) Only (a) and (b)
- (c) (a), (b), (c) and (d)
- (d) (a), (b) and (d)

MH PSC (Pre) 2022

Ans. (c) : Ecosystem is a self-regulatory and self-sustained structural and functional unit with following processes

- (i) Nutrient cycling
- (ii) Energy flow
- (iii) Decomposition
- (iv) Productivity

85. "Environment means the sum total of all conditions agencies and influences which affect the development, growth, life and death of an organism, species or race".

Who created this definition of environment?

- (a) Universal Encyclopedia
- (b) Britanica Encyclopedia
- (c) A. C. Tansley
- (d) Jackis Smith

MH PSC (Pre) 2023

Ans. (a): "Environment means the sum total of all conditions, agencies and influences which affect the development, growth, life and death of an organism, species or race.

A.G. Tansley coined the word 'Ecology' in 1935 as the system resulting from the integration of all the living and non living factors of the environment".

86. The concept of environment is based on which of the following?

- 1. Environmental degradation
- 2. Dimensions of totality of environment
- 3. Shift in the interest
- 4. Globality

Correct answer is-

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

UPPSC (J) 2023

Ans. (b): The concept of environment is based on Dimensions of totality of environment.

Environment is sum total of Biotic and abiotic component.

87. Out of total Oxygen present in the earth's atmosphere, the estimated production of oxygen by Amazon forest through photosynthesis is.

- (a) 40 percent
- (b) 50 percent
- (c) 70 percent
- (d) 20 percent
- (e) Question not attempt

RPSC (Pre) 2023

Ans.(d): The estimated production of oxygen by Amazon forest through photosynthesis is 20% out of total Oxygen present in the earth's atmosphere.

88. In a particular region in India, the local people train the roots of living tree into robust bridges across the streams. As the time passes these bridges become stronger. These unique 'Living Root Bridges' are found in

- (a) Meghalaya
- (b) Himachal Pradesh
- (c) Jharkhand
- (d) Tamil Nadu

IAS (Pre) G.S 2015

Ans: (a) The living root bridges are one of Meghalaya's most beautiful tangible heritage sites. These bridges have been built for centuries by Khasis and the Jaintias and have been used by these people to cross the overflowing river during the monsoon season. The living root bridges are made from rubber tree roots also known as Ficus Elastica tree.

89. Every year, a month long ecologically important campaign/festival is held during which certain communities/ tribes plant saplings of fruit-bearing trees. Which of the following are such communities/tribes?

- (a) Bhutia and Lepcha
- (b) Gond and Korku
- (c) Irula and Toda
- (d) Sahariya and Agariya

IAS (Pre) G.S 2014

Ans: (b) Every monsoon, the Gond and Korku tribes of Madhya Pradesh's districts Betul and Harda respectively celebrate 'Hari Jiroti'. It is a month-long festival of greenery during which the tribals plant saplings of fruit-bearing trees.

90. Which of the following species on earth is known as 'Living fossil' surviving for more than 150 billion years?

- (a) Olive Ridley Turtles
- (b) Loggerheads
- (c) Crane
- (d) Keneps Ridley

OPSC (OCS) Pre-2020

Ans. (a): Olive Ridley Turtles is the species known as living fossil surviving for more than 150 billion years on earth. Olive ridley turtles are found worldwide and listed under the Endangered Species Act. The Odisha's Gahirmatha Marine sanctuary is known as world's largest rookery (colony of breeding animals) of Sea turtles. They are listed as vulnerable under IUCN Red data booklist.

91. With reference to 'Red Sanders', sometimes seen in the news, consider the following statements:

- 1. It is a tree species found in a part of South India.
- 2. It is one of the most important trees in the tropical rain forest areas of South India.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

IAS (Pre) G.S 2016

Ans: (a) Red Sanders tree species is endemic to India and has a highly restrictive distribution in tropical rain forest of Eastern Ghats of South India (Andhra Pradesh, Karnataka and Tamil Nadu). Therefore, both statement 1 and 2 are correct. IUCN placed the Red Sanders in endangered category in 2022.

92. Consider the following statements:

1. The Taxus tree naturally found in the Himalayas.
2. The Taxus tree is listed in the Red Data Book.
3. A drug called "taxol" is obtained from Taxus tree is effective against Parkinson's disease.

Which of the statements given above is/are correct?

- (a) 1 only (b) 1 and 2 only
(c) 2 and 3 only (d) 1, 2 and 3

IAS (Pre) G.S 2010

Ans : (d) Taxus wallichiana Zucc or Himalayan yew belongs to the family Taxaceae and is found in India as an evergreen tree in the temperate Himalayas in the hills of Meghalaya and Manipur at an altitude of 1500 meters. It has been used by the native populations for treating common cold, cough, fever and pain. It received attention recently as its leaves and bark were found to be the prime source of taxol, a potent anticancer drug. Taxol is also been used to treat Parkinson's disease. In 2011, IUCN (International Union for Conservation of Nature) listed Taxus tree in its list of endangered species. Therefore, all the statements are correct.

93. In Uttarakhand, Oak-Rhododendron are characteristic plants of-

- (a) Sub-tropical forest (b) Sub-alpine forest
(c) Temperate forest (d) All of the above

Uttarakhand PSC (Pre) G.S 2016

Ans : (c) The temperate zone of Uttarakhand is rich in flora and fauna. At the height Between 2,000 to 3,000 meter, forests of deodar, oak and rhododendron are found. The wood from oak and rhododendron is utilized for agricultural implements while their leaves serve as cattle fodder. Deodar is used for building temples.

94. If you travel through the Himalayas, you are likely to see which of the following plants naturally growing there?

1. Oak
2. Rhododendron
3. Sandalwood

Select the correct answer using the code given below

- (a) 1 and 2 only (b) 3 only
(c) 1 and 3 only (d) 1, 2 and 3

IAS (Pre) G.S 2014

Ans: (a) The Himalayas stretches over a distance of about 2500 Kms from west to east. Its average width along the entire longitudinal extension ranges from 100 - 400 km. Himalayan vegetation varies according to both altitude and climatic conditions. They range from the tropical deciduous forests in the foothills to temperate forests in the middle altitudes, higher up coniferous forests sub-alpine and alpine forests spring up. These finally give way to alpine grasslands and

high altitude meadows. Tropical deciduous forests are found in regions of slightly lower rainfall. Forests of teak and sal are common in areas of deciduous vegetation. Temperate forests are mainly found in the middle altitudes of the Himalayas. They consist of deodar, blue pine, fir and spruce. Sub-alpine forests are found near the snow line across all over the Himalayas and even in the cold desert regions. Birch forests join the fir forests at an elevation of above 3000m. Oak and rhododendron are found between 2000 m to 3000 m in temperate forest. States namely Tamil Nadu, Karnataka (maximum area), Kerala, Andhra Pradesh, Odisha, Madhya, Maharashtra and Rajasthan. Therefore Sandalwood is not found in Himalayan region. Hence (a) is the correct answer.

95. Government of India encourages the cultivation of 'sea buckthorn'. What is the importance of this plant?

1. It helps in controlling soil erosion and in preventing desertification.
2. It is a rich source of biodiesel.
3. It has nutritional value and is well-adapted to live in cold areas of high altitudes.
4. Its timber is of great commercial value.

Which of the statements given above is /are correct?

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

IAS (Pre) G.S 2012

Ans: (c) Sea buckthorn (Hippophae spp.) is a deciduous shrub or medium sized tree belongs to the family "Elaeagnaceae", which grow naturally at higher altitudes of temperate zone of Asia and Europe. In India, Sea buckthorn is generally found in higher hills of Himachal Pradesh, Uttarakhand, Jammu and Kashmir and Ladakh.

It develops an extensive root system and it has nitrogen fixing property thus used to inhibit soil erosion and land reclamation. Its fruit has nutritious value, anti oxidants, rich in Vitamins and anti ageing properties. Thus it is used in medicine industry. It is exceptionally hardy plant able to withstand temperatures as low as - 43°C and thus adapted to cold areas of high altitudes. It is also called Leh berry wonderberry or Ladakh Gold.

Hence, statements 1 and 3 are correct.

96. Sea buckthorn has a huge global market potential. The berries of this plant are rich in vitamins and nutrients. Genghis Khan used them to improve stamina of his troops. Russian cosmonauts used its oil to combat radiation. Where is this plant found in India?

- (a) Nagaland (b) Ladakh
(c) Kodaikanal (d) Pondicherry

UPPCS (Mains) G.S 2004

Ans: (b) Kindly refer the explanation of the above question.

1. Given below are two statements, one is labelled as Assertion (A) and other as Reason (R).

Assertion (A): Various components of an ecosystem are not inter-dependent.

Reason (R): Human activities have the impacts on the environment.

Select the correct answer using the codes given below.

Codes.

- (a) Both (A) and (R) are true and (R) is correct explanation of (A)
- (b) Both (A) and (R) are true, but (R) is not the correct explanation of (A)
- (c) (A) is true, but (R) is false
- (d) (A) is false, but (R) is true

UPPCS (pre.) 2021

Ans. (d): All organisms in an ecosystem depend upon each other. If the population of one organism rises or falls, then this can affect the rest of the ecosystem. Therefore, option A is incorrect. Human activities such as over population, pollution, burning fossil fuels and deforestation affect the physical environment in many ways e.g. global warming, climate change, soil erosion, poor air quality and undrinkable water etc. Therefore, option (R) is correct.

A. Energy flow

2. In the context of ecosystem productivity, marine upwelling zones are important as they increase the marine productivity by bringing the-

- 1. Decomposer microorganism to the surface.
- 2. Nutrients to the surface.
- 3. Bottom-dwelling organism to the surface.

Which of the statements given above is/are correct?

- (a) 1 and 2
- (b) 2 only
- (c) 2 and 3
- (d) 3 only

IAS (Pre) G.S 2011

Ans : (b) Upwelling is a process in which deep, cold water rises toward the surface, in this process the surface waters are replaced by cold nutrient-rich water. It is important for ecosystem productivity

3. **Statement-1 : The amount of usable energy remains constant as it is passed from one trophic level to another.**

Statement 2 : The energy within an ecosystem is constant and never changes.

- (a) Both Statement 1 and Statement 2 are correct.
- (b) Both Statement 1 and Statement 2 are incorrect
- (c) Statement 1 is correct and Statement 2 is incorrect
- (d) Statement 1 is incorrect and Statement 2 is correct

Himachal Pradesh PSC (HPAS) Pre 2021

Ans. (b): The energy within an ecosystem is not constant and the transfer of energy from one trophic level to another follows the 10% law according to which 10% of the energy is lost in respiration and the form of heat. Hence, both statements 1 & 2 are incorrect.

4. **The amount of energy during transfer from one trophic level to another in an ecosystem**

- (a) Increases
- (b) Decreases
- (c) Remains constant
- (d) May increase or decrease

UPPCS (Pre) G.S, 2019
UPPCS RO/ARO (Pre) 2017

Ans : (b) Kindly refer the explanation of the above question.

5. **10 percent law is related with**

- (a) Transfer of energy as food from one trophic level to other
- (b) Transfer of heat from one matter to another
- (c) Transfer of water from one zone to another
- (d) None of these

Chhattisgarh PSC (Pre) G.S 2016

Ans : (a) Kindly refer the explanation of above question.

6. **Ecosystem is self-regulatory and self-sustained structural and functional unit of nature where biotic and abiotic components are linked together with the following processes:**

- (A) Productivity
- (B) Decomposition
- (C) Nutrient cycling
- (D) Energy flow

- (a) Only (A)
- (b) Only (A) and (B)
- (c) (A), (B), (C) and (D)
- (d) (A), (B) and (D)

Maharashtra PSC 2022

Ans. (c) : An ecosystem is a structural and functional unit of ecology where biotic (living) and abiotic (non-living) components are linked together with process of productivity, energy flow, decomposition and nutrient cycle.

Hence, option (c) is correct answer.

7. **Who proposed the 10% law of energy flow in ecosystems?**

- (a) Lindeman
- (b) Carl Mobius
- (c) Tansley
- (d) Darwin

Mizoram PSC (Pre) 2023

Ans. (a): The 10 percent law of energy flow in ecosystem was proposed by Lindeman.

Ten Percent rule states that each trophic level only give 10% of its energy to the next level. The other 90% is used to live, growth, reproduce and is lost to the environment as heat. Energy flow in the biospheric ecosystem is always uni-directional.

8. Which of the following is a correct statement?
- Energy flow in the biospheric ecosystem is unidirectional
 - Energy flow in the biospheric ecosystem is cyclic
 - Relative loss of energy in natural ecosystem decreases with increasing trophic levels
 - Species at progressively higher trophic levels appear to be less efficient in using available energy

UPPCS (Pre) G.S (Re-Exam) 2015

Ans : (a) Kindly refer the explanation of the above question.

B. Food Chain & Food Web

9. In a food chain, man is
- Producer
 - Only primary consumer
 - Only secondary consumer
 - Primary as well as secondary consumer

UPPCS (Pre) G.S 2016

Ans : (d) In food chain, man is primary as well as secondary consumer as it eats plants, fruits and animals.

10. Which of the following constitute a food chain?
- Grass, Wheat and Mangos
 - Grass, Goat and human
 - Goat, Cow and Elephant
 - Grass, Fish and Goat
 - None of the above

Chhattisgarh PSC (Pre) G.S 2016

Ans : (b) Correct food chain is grass, goat and human as grass is being eaten by goat and goat is being eaten by human.

11. Assertion (A) : Food chain is the sequence of transfers of matter and energy in the form of food from organism to organism.

Reason (R) : The amount of energy at each trophic level decreases by 50% as it moves through an ecosystem.

Select the correct answer given below :

- Both (A) and (R) are true and (R) is correct explanation of (A)
- Both (A) and (R) are true, but (R) is not correct explanation of (A)
- (A) is true, but (R) is false
- (A) is false, but (R) is true

Arunachal PSC (GS) 26-11-2021

Ans. (c) : Food chain is the sequence of transfers of matter and energy in the form of food from organism to organism.

The amount of energy at each trophic level decrease as it moves through an ecosystem. As little as 10% of the energy at any trophic level is transferred to the next level, the rest is lost largely through metabolic processes as heat.

12. Which of the following is correct sequence of ecosystem in order of decreasing productivity?
- Ocean, Lakes, Grasslands and Mangroves
 - Mangroves, Oceans, Grasslands and Lakes
 - Mangroves, Grasslands, Lakes and Oceans
 - Oceans, Mangroves, Lakes and Grasslands

UPPSC RO-ARO (Pre) 2021

Ans. (c) : Primary production is defined as the amount of biomass or organic matter produced per unit area over a time period by plants during photosynthesis. The rate of biomass production is called productivity.

Order of decreasing productivity of different ecosystems-
Mangroves > Grassland > Lakes > Oceans

13. With reference to food chains in ecosystems, consider the following statements:

- A food chain illustrates the order in which a chain of organisms feed upon each other.
- Food chains are found within the populations of a species.
- A food chain illustrates the numbers of each organism which are eaten by others.

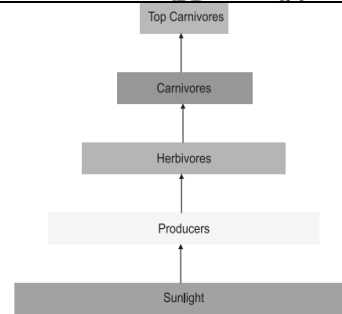
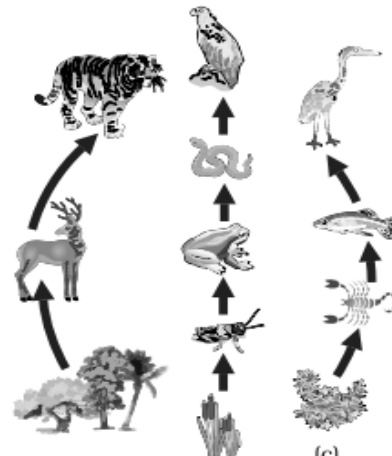
Which of the statements given above is / are correct?

- 1 only
- 1 and 2 only
- 1, 2 and 3
- None

IAS (Pre) G.S 2013

Ans : (a) The chain of transfer of food energy from one group of organisms to the other group in the ecosystem is called food chain. The food chain illustrates the order in which a chain of organisms feed upon each other. The food chains are found from one group of organism to the other group through a series of steps of levels which is known as trophic level. In food chain the numbers of organism which is eaten by others are not fixed.

Hence, the statement-1 is correct while statements 2&3 are not correct.



14. Consider the following statements about ecosystem-

- The production at the autotroph level is said to be primary productivity.

2. The secondary productivity refers to the production at the heterotrophy level.

Of the above, the correct statement/s is/are:

- (a) Only 1 (b) Only 2
(c) Both 1 and 2 (d) Neither 1 nor 2

UPPSC RO/ARO (Pre) 2017

Ans : (c) The rate of conversion of solar energy into chemical energy (organic matter) by autotrophs is called primary productivity.

Hence, statement-1 is correct.

The rate at which consumers (Heterotrophs) convert the chemical energy of the food they eat into their own new bio mass is called the secondary productivity.

Hence, statement-2 is also correct.

- 15. Increase in concentration of a toxicant at successive trophic level is called**

- (a) Bio-magnification (b) Succession
(c) Eutrophication (d) Biotransformation

Mizoram PSC (Pre) 2023

Ans. (a): Increase in concentration of a toxicant at successive trophic level is called Bio-magnification.

Eutrophication is a process in which a water body becomes overly enriched with nutrients, leading to the plentiful growth of simple plant life.

Ecological Succession is the process by which the mix of species and habitat in an area changes over time.

Biotransformation is the biochemical modification of one chemical compound or mixture of chemical compounds.

- 16. Trophic levels are formed by–**

- (a) Organisms linked in food chain
(b) Animals only
(c) Carnivorous animals only
(d) Plants only

UPPCS (Pre) 2023

Ans. (a) : Trophic level is defined as the position of an organism in the food chain and ranges from a value of 1 for producers to 5 for other consumers of various levels. Therefore trophic levels are formed by organisms linked in food chain.

- 17. Which of the following are detritivores?**

1. Earthworms 2. Jellyfish
3. Millipedes 4. Seahorses
5. Woodlice

Select the correct answer using the code given below:

- (a) 1, 2 and 4 only (b) 2, 3, 4 and 5 only
(c) 1, 3 and 5 only (d) 1, 2, 3, 4 and 5

UPSC (IAS) 2021

Ans: (c) Earthworms, Millipedes and Woodlice are detritivores. Jellyfish and Sea horse is also primarily a carnivorous animal. Detritivores are heterotrophs that obtain their nutrition by feeding on detritus i.e. dead or decaying plants or animals. Detritivores play an important role in the breakdown of organic matter from decomposing animals and plants. Detritivores include microorganisms such as bacteria and fungi; invertebrate insects such as mites, beetles, butterflies and flies; mollusks such as slugs and snails; or soil-dwelling earthworms, millipedes and woodlice.

C. Ecological Pyramids

- 18. An inverted pyramid of biomass can be found in which ecosystem?**

- (a) Marine (b) Grassland
(c) Forest (d) Tundra

RAS/RTS (PRE.) 2021

Ans. (a): An inverted pyramid of biomass found in marine ecosystem. In the aquatic ecosystem, pyramids of biomass are inverted because some producers, especially phyto plankton are able to reproduce quickly enough to support a larger biomass of grazers.

- 19. The Pyramid of energy in any ecosystem is–**

- (a) Always upright
(b) Always inverted
(c) May be upright or inverted
(d) None of these

**Mizoram PSC (CCE) Pre-2021, 2018 Paper-I
MPPCS (Pre.) 2020**

UPPSC Asst. Forest Conservator Exam. 2015

Ans. (a) : The energy pyramid in an ecosystem is always upright as only 10 per cent of the energy is transferred to each trophic level from the lower trophic level.

- 20. Which of the following is not the type of Ecological pyramid?**

- (a) Pyramid of number (b) Pyramid of biomass
(c) Pyramid of food web (d) Pyramid of energy

MH PSC (Pre) 2023

Ans. (c) : Pyramid of food web is not the type of Ecological pyramid.

Ecological pyramid is a graphical representation of the relationship between the different living organisms at different trophic levels.

Types of Pyramid

→ Pyramid of Number

→ Pyramid of Biomass

→ Pyramid of Energy.

D. Trophic Level

- 21. Indiscriminate use of DDT is undesirable because**

- (a) It causes mutation
(b) It is degradable
(c) It accumulated in the food chain
(d) None of the above

Tripura TPCS (TCS) -2019

Ans. (c) : Indiscriminate use of DDT is undesirable because it accumulated in the food chain. D.D.T. is a toxic substance, and can undergo biological magnification. Biomagnification refers to increase in concentration of toxicant (Non biodegradable pollutants). e.g. The concentration of D.D.T increases as –

1. Grassopher → Toad → Snake.

2. Water → Zooplanktone → Small fish → Large fish → Fish eating bird.

- 22. Which one of the following organisms is likely to show the highest- concentration of DDT once it has been introduced into the ecosystem?**

- (a) Grasshopper (b) Toad
(c) Snake (d) Cattle

IAS (Pre.) G.S. 1997