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+2 ZOOLOGY
IMPORTANT QUESTIONS WITH ANSWERS
UNIT V
(CHAPTERS 11, 12 and 13)

ORGANISMS AND POPULATIONS

ONE MARK QUESTIONS:

1. Name the scientist who first used the term niche as the functional status of an organism.
   Charles Elton (1927)
2. What is pedosphere?
   The soil zone of the earth is called pedosphere.
3. Name the device used to measure the speed of wind.
   Anemometer
4. Name the device used to measure humidity.
   Hygrometer
5. Mention the abiotic components.
   Light, temperature, pressure, water, salinity
6. Who established the Madras Crocodile Bank and Centre for Herpetology?
   Romulus Whitaker in 1976

2 MARK QUESTIONS:

7. What is a Habitat?
   Habitat refers to the place where an organism or a community of organisms live, including all biotic and abiotic factors or conditions of the surrounding environment.
8. Define ecological niche.
   The physical space occupied by an organism and its functional role in the community is called ecological niche.
9. What is Acclimatization?
   Acclimatization refers to the physiological changes that occur in the body of animals in response to environmental changes.
10. What is Pedogenesis?
    Pedogenesis is the formation of soil from rocks, which are the parent materials of soil, by weathering and is called embryonic soil.
11. What is soil permeability?
    Permeability is the characteristic of soil that determines the movement of water through pore spaces (the space between soil particles).
12. Define adaptation.
    Adaptation is a dynamic evolutionary process that fits organisms to their environment and enhancing their evolutionary fitness.

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13. What does ecology mean?

The study of the environment with all the organisms in it and all the functional processes that make the environment inhabitable.

14. What does Bergmann's rule say?

As per Bergmann rule, birds and mammals attain greater body size in colder regions than those in warmer regions.

15. Define phototaxis.

The movement of organism in response to light, either towards the source of light as in moths (positive phototaxis) or away from light (euglena, volvox, earthworm (negative phototaxis).

16. Define phototropism

The growth or orientation of an organism in response to light, either towards the source of light (positive phototropism) as in sunflower, or away from light (negative phototropism) as in the root of plants.

17. Define photo kinesis.

A change in the speed of locomotion (or frequency of turning) in a motile organism or cell which is made in response to a change in light intensity is called Photo kinesis.

18. What do you mean by ethology?

Ethology is the scientific study of animal behavior, under natural conditions.

3 MARK QUESTIONS:

19. Explain ecological niche with respect to pond ecosystem.

In a pond ecosystem, where Catla, Rohu and Mrigal are present, the ecological niche of the Catla is a surface feeder, Rohu is a column feeder and Mrigal is a bottom feeder. Their mouths are designed to suit their niche and hence have different positions and functions in their habitat.

20. Differentiate between Eurytherm and Stenotherm.

Organisms which can tolerate a wide range of temperature are referred to as Eurytherm. Ex. cat, dog, tiger, humans

Those organisms which can tolerate only a narrow range of temperature are Stenotherm. Ex. fish, frogs, lizards and snakes

21. Explain hibernation and aestivation with examples.

Hibernation	Aestivation
Hibernation (winter sleep) are useful adaptations to overcome extreme cold conditions.	Aestivation (Summer sleep) are useful adaptations to overcome extreme summers.
Ex. Arctic fishes produce antifreeze proteins during	Ex. Entamoeba produces heat resistant spores and cysts during

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winter	hot summer.

22. Give the diagnostic characters and features of a biome.

- Location, Geographical position (Latitude, Longitude)
- Climate and physio chemical environment
- Predominant plant and animal life
- Boundaries between biomes are not always sharply defined.
- Transition or transient zones are seen as in case of grassland and forest biomes.

23. Classify the aquatic biomes of earth.

1. Freshwater (Lakes, ponds, rivers)
2. Brackish water (Estuaries / Wetlands)
3. Marine (Coral reefs, pelagic zones and abyssal zones)

24. Differentiate Natality and Mortality.

Natality is equivalent to birth rate. It may be expressed as number of organisms born per female per unit time. The crude birth rate of a population can be calculated using the formula:

$$\text{Birth rate (b)} = \frac{\text{Number of births per unit time}}{\text{Average population}}$$

Mortality can be expressed as a loss of individuals in unit time or death rate. The crude death rate of a population can be calculated, using the formula:

$$\text{Death rate (d)} = \frac{\text{Number of deaths per unit time}}{\text{Average population}}$$

25. Differentiate J-Shaped and S- Shaped curve

J - shaped curve	S - shaped curve
It shows rapid increase in population growth followed by abrupt decrease.	It shows gradual increase and gradual decrease in the population growth.
Equilibrium is not reached.	After a gradual decrease in population growth, equilibrium is reached and maintained.
Ex. Insects	Ex. Small mammals

26. Define parasitism with an example.

It is a kind of harmful interaction between two species, wherein one species is the 'parasite' and the other its 'host'. Ex. head lice, leech (ectoparasites) plasmodium, entamoeba, round worms, tape worms, etc. (endoparasites)

27. Differentiate between predator and prey.

Predator	Prey

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Predator is the animal that kills and eats by hunting other animals.	Prey is the animal that is killed and eaten by the predator animals.
Predator animal tends to be larger and stronger than the prey.	Prey normally tends to be smaller than the predator.
Predator depends on prey for its energy requirements.	Prey does not depend on predator for its energy requirements.

28. Say about van't Hoff's rule.
    van't Hoff proposed that, with the increase of every 100C, the rate of metabolic activity doubles or the reaction rate is halved with the decrease of 100C. This rule is referred as the van't Hoff's rule.
29. Say about Allen's rule
    Allen's rule says that, warm blooded animals, living in colder climates, tend to have shorter limbs, ears and other appendages when compared to the members of the same species in warmer climates.
30. Say about Jordon's rule.
    According to Jordon's rule, in some aquatic environments, an inverse relationship between water, temperature and fish meristic characters is observed - lower the temperature, more will be the number of vertebrae.
31. Specify the four major functions of soil.
    Medium for plant growth
    Means for water storage and purification
    Modifier of earth's atmosphere
    Habitat for many organisms, which modify the soil
32. Mention the deserts which receive lowest and higher rain fall.
    Rainfall is lowest in the Atacama Desert of Chile, where average rainfall is less than 15 mm. Some years are even rainless. Inland Sahara also receives less than 15 mm rainfall a year. Rainfall in American deserts is higher - almost 280 mm a year.
33. What is meant by migration?
    Movement of a population in mass from one place to another place and back for breeding purpose or to avoid extreme temperature.
    Ex. Siberian cranes move from Siberia to Vedanthangal in Tamil Nadu during winter and move back to Siberia in spring.
34. Differentiate anadromous and catadromous migration.

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Some fishes migrate from sea to fresh water, which is said to be anadromous migration. Ex. Salmon

Some fishes migrate from fresh water to sea, which is said to be catadromous migration. Ex. Eel

35. Differentiate immigration from emigration.

Immigration	Emigration
An organism entering into a new habitat, where resources are available and ideal for its survival.	An organism moving out of its habitat as resources are not available and no longer the habitat is ideal for it.
Immigration can allow new populations of a species to form.	Emigration can cause local populations to decline.

36. What are the categories of inter specific associations.

Interspecific associations or interactions can be:

Neutral: where different species live together but do not affect each other.

Positive: it is a symbiotic relationship in which no organism in association is harmed and either one or both may be benefitted. It is of two types, Mutualism and Commensalism.

Negative: One or both of the interacting organisms will be affected as in case of competition, predation, parasitism.

5 MARK QUESTIONS:

37. What are the ways by which organisms respond to abiotic factors.

Migrate:

Organisms tend to Some organisms can maintain constant physiological and morphological conditions or undertake steps to overcome the environmental condition.

Regulate:

Some organisms are able to maintain homeostasis by physiological means which ensures constant body temperature, ionic/osmotic balance. Ex. Birds, mammals

Conform:

In some animals their body temperature changes with the ambient temperature. Ex. fishes move away temporarily from a stressful habitat to a new, hospitable area and return when the stressful period is over. Birds migrate from Siberia to Vedanthangal in Tamil Nādu to escape from the severe winter periods.

Suspend:

This is seen commonly in bears going into hibernation during winter. Some snails and fish go into aestivation to avoid summer related

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problems like heat and desiccation. Some lower animals suspend a certain phase of their life cycle, which is referred to as diapause.

38. Give an account of properties of soil.

Texture of soil: The texture of soil is determined by the size of the soil particles. The types of soil include sand, silt and clay on the basis of their size differences.

Porosity: The space present between soil particles in a given volume of soil are called pore spaces. The percentage of soil volume occupied by pore space or by the interstitial spaces is called porosity of the soil.

Permeability of soil: The characteristic of soil that determines the movement of water through pore spaces is known as soil permeability.

Soil Temperature: Soil gets its heat energy from solar radiation, decomposing organic matter, and heat from the interior of earth.

Soil water: In soil, water is important as a solvent and transporting agent. It also maintains soil texture, arrangement and compactness of soil particles, making soil habitable for plants and animals.

39. List the adaptations seen in terrestrial animals.

- ✓ Earthworms, land Planarians secrete a mucus coating to maintain a moist situation for burrowing, coiling, respiration, etc.,
- ✓ Arthropods have an external covering over the respiratory surfaces and well- developed tracheal systems.
- ✓ In vertebrate skin, there are many cellular layers besides the well protected respiratory surfaces that help in preventing loss of water.
- ✓ Some animals obtain their water requirement from food as partial replacement of water lost through excretion.
- ✓ Camels are able to regulate water effectively for evaporative cooling through the skin and respiratory system and excrete highly concentrated urine, and can also withstand dehydration up to 25% of their body weight. The hoofs and hump are also suitable adaptations for survival in this dry sandy environment.

40. Describe Growth Models/Curves.

Populations show characteristic growth patterns or forms. These patterns can be plotted and termed as J-shaped growth form and S-shaped growth form (Sigmoid form).

J - shaped growth form:

When a population increases rapidly in an exponential fashion and then stops abruptly due to environmental resistance or due to sudden appearance of a limiting factor, they are said to exhibit J-shaped growth form. Many insects show explosive

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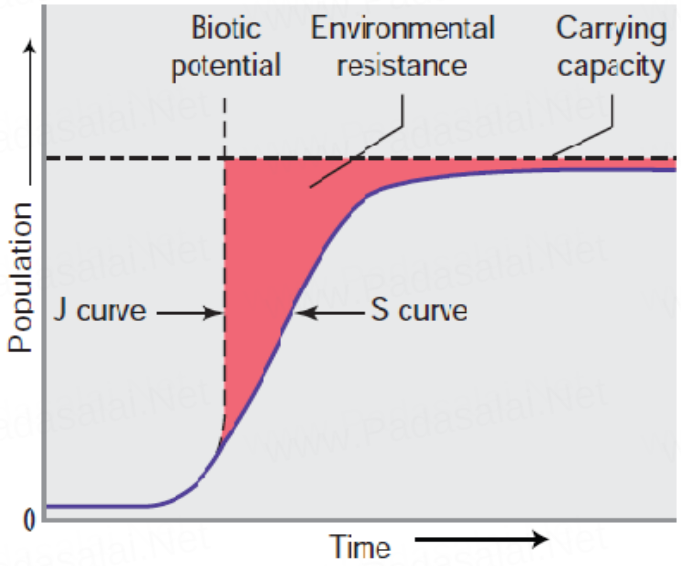
increase in number during the rainy season followed by their disappearance at the end of the season.



<u>S - shaped growth form</u>: (Sigmoid growth)
Some populations, as in a population of small mammals, increase slowly at first then more rapidly and gradually slow down as environmental resistance increases whereby equilibrium is reached and maintained. Their growth is represented by S - shaped growth curve.

41. Tabulate two species population interaction.

S. NO.	TYPES OF INTERACTION	SPECIES 1	SPECIES 2	GENERAL NATURE OF INTERACTION	EXAMPLES
1	Amensalism	–	0	The most powerful animal or large organisms inhibits the growth of other lower organisms	Cat and Rat
2	Mutualism	+	+	Interaction favorable to both and obligatory	Between crocodile and bird
3	Commensalism	+	0	Population 1, the commensal benefits, while 2 the host is not affected	Sucker fish on shark
4	Competition	–	–	Direct inhibition of each species by the other	Birds compete with squirrels for nuts and seeds
5	Parasitism	+	–	Population 1, the parasite, generally smaller than 2, the host	*Ascaris* and tapeworm in human digestive tract
6	Predation	+	–	Population 1, the predator, generally larger than 2, the prey	Lion predatory on deer

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42. Give an account of the properties of water.

- **Water is one of the main agents in Pedogenesis (soil formation).**
- **It is the medium for several different ecosystems.**
- **Water is heavier than air and imparts greater buoyancy to the aquatic medium. This enables organisms to float at variable levels.**
- **Water is physically unique because it is less dense as a solid (ice) than as a liquid.**
- **Water is considered as the Universal solvent.**

43. Say briefly about the types of interspecific interactions.

AMENSALISM: (--, 0):

Individual species harm another without obtaining benefit. Ex. animals destroyed at the feet of elephants

MUTUALISM: (+, +):

Both species benefit. Ex. Small birds cleaning the teeth of crocodiles. Here the birds get food and the teeth of crocodile is cleaned.

COMMENSALISM: (+, 0):

This defines the interaction in which two or more species are mutually associated. One species gets benefit while the other associates are neither benefited nor harmed. Ex. Egrets usually are present near cattle.

They catch insects which are stirred up by the cattle. The bird benefits, while the cattle are neither affected nor benefitted.

COMPETITION: (--, --):

It refers to the type of interaction in which individuals of the same species or different species vie for limited availability of food, water, nesting space, mates or other resources.

When resources are inadequate, the weakest, least adapted, or least aggressive individuals are often forced to face challenges. This phenomenon is known as the competitive exclusion or principle of Hardin.

PARASITISM: (+, -):

It is a kind of harmful interaction between two species, wherein one species is the 'parasite' and the other its 'host'. The parasite benefits at the expense of the host. A parasite derives shelter, food and protection from the host.

PREDATION: (+, --):

It is a form of interaction, where one animal kills another animal for food.

Ex. lion and deer exhibit predator – prey relationship, where the

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lion is the predator and the deer is the prey.

BIODIVERSITY AND ITS CONSERVATION:

ONE MARK QUESTIOS:

44. Who introduced the term biodiversity?
    Walter Rosen
45. Name the scientist who explored species area relationship.
    Alexander von Humboldt
46. Name the active chemical found in the medicinal plant Rauwolfia vomitoria. What type of diversity it belongs to?
    Reserpine, it belongs to genetic diversity.

2 MARK QUESTIONS:

47. What is endemism?
    Endemism is a situation in which a species is restricted to a particular geographic location such as an island, state, country etc.
    Ex. Nilgiri Thar, state animal of Tamil Nadu
48. "Amazon forest is considered to be the lungs of the planet"-Justify this statement.
    The Amazon is a rainforest. Having a vast area, it harbours millions of species. Hence it is called "Lungs of the planet".
49. What are the factors that drive habitat loss?
    Natural habitats are destroyed for the purpose of settlement, agriculture, mining, industries, and construction of highways.
50. Define species diversity.
    Species diversity refers to the variety in number and richness of the species in any habitat.
51. What is mean sea level?
    Mean Sea Level (MSL) is an average level of the surface of one or more of Earth's oceans (or seas) from which, heights such as elevations may be measured.
52. Expand IUCN. What field does it work?
    The International Union for Conservation of Nature (IUCN) is an organization working in the field of nature conservation and sustainable use of natural resources.
53. What is habitat fragmentation?
    Habitat fragmentation is the process where a large, continuous area of habitat is both, reduced in area and divided into two or more fragments.
54. Define over exploitation.
    Excessive or overuse of animal and plant resources is called over

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exploitation.

3 MARK QUESTIONS:

55. Say about the effect of over exploitation.

Dodo, passenger pigeon and Steller's Sea cow have become extinct in the last 200-300 years due to over exploitation by humans. Overfishing due to population pressure leads to many marine fish (populations) declining around the world.

56. What are the three levels of biodiversity?

The three levels of biodiversity are:

i) Genetic diversity
ii) Species diversity and
iii) Community/Ecosystem diversity

57. 'Red data book'- what do you know about it?

Red Data book or Red list is a catalogue of taxa facing risk of extinction. IUCN – International Union of Conservation of Nature and Natural Resources, which is renamed as WCU – World Conservation Union (Morges Switzerland) maintains the Red Data book.

58. Compare and contrast the in-situ and ex-situ conservation.

In-situ conservation - refers to conservation of organisms in the natural habitat. This aims at the conservation of genetic resources through their protection within a natural or manmade ecosystem in which they occur.

Ex-Situ Conservation - refers to conservation of organisms outside their natural habitat.

It is to conserve selected rare plants/ animals in places outside their natural homes.

59. Why do we find a decrease in biodiversity distribution, if we move from the tropics towards the poles?

Harsh conditions exist in temperate areas during the cold seasons while very harsh conditions prevail for most of the year in polar regions. Hence there is a decrease in the biodiversity distribution as we move from tropics towards poles.

60. Mention the major threats to biodiversity caused by human activities.

Direct human activities:

Change in local land use, species introduction or removal, harvesting, pollution and climate change

Indirect activities:

Monsoon failure, global warming, depletion in ozone layer, landslides in hilly states, pollution

61. What do you mean by protected areas?

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These are biogeographical areas where biological diversity along with natural and cultural resources is protected, maintained, and managed through legal measures.

62. What are wild life sanctuaries?

Any area apart from reserve forest or the territorial waters and has adequate ecological, faunal, floral, geomorphological, natural, or zoological significance can be notified by the State Government as a sanctuary. This is for the purpose of protecting, endangered factual species.

63. What do you mean by WWF?

World Wild Fund for Nature (WWF) is an international non-governmental charitable trust founded in 1961. It aims at wildness preservation and the reduction of human impact on the environment.

64. Define biodiversity.

Biodiversity is defined as the variability among living organisms from all sources, including terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are a part.

65. Why is the population of sparrows dwindling?

The population of sparrows is dwindling due to the use of packed food, insecticides in farming and changing lifestyles, and match box-styled architecture resulting in an inadequate availability of food and shelter for the birds. Unlike pigeons that can make nests on ledges, sparrows need cavities to build their nests.

66. Expand IUCN. What field does it work?

The International Union for Conservation of Nature (IUCN) is an organization working in the field of nature conservation and sustainable use of natural resources.

67. What is habitat fragmentation?

Habitat fragmentation is the process where a large, continuous area of habitat is reduced in area and divided into two or more fragments.

68. Define hotspots.

Norman Myers defined hot spots as “regions that harbour a great diversity of endemic species and at the same time, have been significantly impacted and altered by human activities.”

69. Say about “Project tiger”.

The Government of India launched the ‘Project Tiger’ in 1973 to protect our national animal.

The project ensures a viable population of Bengal tigers in their natural habitats, protecting them from extinction and preserving areas of biological importance as a natural heritage.

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70. What are called endangered species? Explain with examples.

A species that has been categorized as very likely to become extinct is an Endangered species.

In 1998 there were 1102 animal and 1197 plant species in the IUCN Red List. In 2012, the list features 3079 animal and 2655 plant species as endangered (EN) worldwide. Examples for endangered species are Royal Bengal Tiger, Lion Tailed Macaque, Nilgiri Langur, Gray Wolf, etc.,

71. Expand the acronyms.

CBD - Convention on Biological diversity
BDA - Biodiversity Act
NBA - National Biodiversity Authority
CITES - Convention on International Trade in Endangered Species
ZSI - Zoological Survey of India

5 MARK QUESTIONS:

72. How many hotspots are there in India? Name them.

There are four hot spots in India. They are:

i) Himalaya: (the entire Indian Himalayan region)
ii) Western Ghats
iii) Indo-Burma includes entire North-eastern India, except Assam and Andaman group of Islands (and Myanmar, Thailand, Vietnam, Laos, Cambodia, and Southern China)
iv) Sundalands: includes Nicobar group of Islands (and Indonesia, Malaysia, Singapore, Brunei, Philippines)

73. Alien species invasion is a threat to endemic species – substantiate this statement.

Exotic species (non-native; alien) are organisms often introduced unintentionally or deliberately for commercial purpose, as biological control agents and other uses. They often become invasive and drive away the local species and is considered as the second major cause for extinction of species.

Tilapia fish (Jilabi kendai) (Oreochromis mosambicus) introduced from east coast of South Africa in 1952 for its high productivity into Kerala's inland waters, led to the extinction of native species such as Puntius dubius and Labeo kontius.

The introduction of the Nile Perch, a predatory fish into Lake Victoria in East Africa led to the extinction of more than 200 nature species of cichlid fish in the lake.

Papaya Mealy Bug (Paracoccus marginatus) is native of Mexico and Central America, is believed to have destroyed huge crops of papaya in Assam, West Bengal, and Tamil Nadu.

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74. What is mass extinction? Will you encounter one such extinction soon. Enumerate the steps to be taken to prevent it.

- **Mass extinction refers to the disappearance of a particular species from the earth.**
- **Ex. About 225 million years ago during the Permian, 90% of shallow water marine invertebrates disappeared.**
- **We can encounter one such extinction by not interfering with the nature and natural habitats.**
- **People should be educated on the importance of preserving endangered species.**
- **They should also understand that biodiversity is essential for the wellbeing of our planet and sustenance of life as whole.**
- **To prevent mass extinction human activities like hunting, habitat destruction, over exploitation, urbanization and industrialization must be regulated or banned depending on the situation.**

75. In north eastern states, the jhum cultivation is a major threat to biodiversity – substantiate the statement.

In shifting cultivation, plots of natural tree vegetation are burnt away. The cleared patches are farmed for 2-3 seasons, after which their fertility is reduced that, crop production is no longer profitable. The farmer then abandons this patch and cuts down a new patch of forest trees elsewhere for crop production.

When vast areas are cleared and burnt, it results in loss of forest cover, pollution, and discharge of CO_2 which in turn results in loss of habitat and climate change which has an impact on the biodiversity of that regions.

76. List out the various causes for biodiversity losses.

<u>Causes for biodiversity loss:</u>

- ✓ **Habitat loss, fragmentation, and destruction. (Affects about 73% of all species)**
- ✓ **Pollution and pollutants. (Smog, pesticides, herbicides, oil slicks, GHGs)**
- ✓ **Climate change.**
- ✓ **Introduction of alien/exotic species.**
- ✓ **Over exploitation of resources. (Poaching, indiscriminate cutting of trees, overfishing, hunting, mining)**
- ✓ **Intensive agriculture and aquacultural practices.**
- ✓ **Hybridization between native and non-native species and loss of native species.**
- ✓ **Natural disasters (Tsunami, forest fire, earthquake, volcanoes)**

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- ✓ **Industrialization, Urbanization, infrastructure development, Transport – Road and Shipping activity, communication towers, dam construction, unregulated tourism and monoculture are common areas of specific threats.**
- ✓ **Co-extinction**

77. How can we contribute to promote biodiversity conservation?

General strategies to promote biodiversity conservation are:

- ➢ **identify and protect all threatened species.**
- ➢ **identify and conserve in protected areas the wild relatives of all the economically important organisms.**
- ➢ **identify and protect critical habitats for feeding, breeding, nursing, resting of each species.**
- ➢ **resting, feeding, and breeding places of the organisms should be identified and protected.**
- ➢ **air, water, and soil should be conserved on priority basis wildlife Protection Act should be implemented.**

78. Explain three types of extinction.

i) Natural extinction:

It is a slow process of replacement of existing species with better adapted species due to changes in environmental conditions, evolutionary changes, predators and diseases. A small population can get extinct sooner than the large population due to inbreeding depression (less adaptivity and variation).

ii) Mass extinction:

The earth has experienced quite a few mass extinctions due to environmental catastrophes. A mass extinction occurred about 225 million years ago during the Permian, where 90% of shallow water marine invertebrates disappeared.

iii) Anthropogenic extinction:

These are abetted by human activities like hunting, habitat destruction, over exploitation, urbanization and industrialization. Some examples of extinctions are Dodo of Mauritius and Steller's Sea cow of Russia. Amphibians seem to be at higher risk of extinction because of habitat destruction.

ENVIRONMENTAL ISSUES:

ONE WORD QUESTIONS:

79. Expand (i) CFC (ii) AQI (iii) PAN

CFC- Chloro Fluro Carbons

AQI- Air Quality Index

PAN- Peroxy Acetyl Nitrate

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80. What is SMOG?

Smog is a type of air pollution caused by tiny particles in the air.

81. Name the pollutant that leads to global warming.

CO_2

82. Name the pollutants that cause acid rain.

Sulphur di oxide, Nitrogen di oxide

83. Mention the UNESCO world heritage building affected by air pollution.

Taj mahal

84. What is the permissible limit of noise pollution?

65 decibels (dB) during day and 55 dB during night.

85. Name the agricultural scientist who was the supporter of ecologicaland organic farming.

G. Nammalavr

86. Name the Indian soil biologist and ecologist from Tamil Nādu.

Dr. Sultan Ahmed Ismail

2 MARK QUESTIONS:

87. Say about global warming.

Increase in the concentrations of greenhouse gases such as CO2, methane, nitrous oxide, CFCs, and ozone causes greenhouse effect, warming of the earth, resulting in sea level rise, submerging of islands and sea shores of various parts of the world.

88. What is ozone depletion? What does it cause?

Thinning of the stratospheric ozone layer is known as ozone depletion. Such depletion causes the 'ozone hole', resulting in poor screening of the harmful UV rays and increase in incidences of skin cancer. Some of the common agents that deplete ozone are CFCs.

89. What is acid rain? What are its harmful effects?

Acid rain is a form of precipitation that contains acidic components, such as sulphuric acid or nitric acid. It damages trees, crops and harms marine animals (coral reefs), human beings and induces corrosion.

90. How does leaks and spills occur?

This occurs mostly due to ship collision, off shore oil rigs, oil leakages and discharges into sea.

91. Mention the sources of water pollution.

Sources of water pollution can also be classified in three ways. They are municipal wastes, industrial wastes, and agricultural wastes.

92. Define noise and noise pollution.

Sound that is unwanted and undesirable or can disrupts one's quality of life is called as noise.

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When there is lot of 'noise' in the environment, it is termed as Noise Pollution.

93. What do mosquito repellents cause?

DEET (N, N-Diethyl meta toluamide) and allethrin used in mosquito coils may cause itching, burning, tingling sensation or numbness.

3 MARK QUESTIONS:

94. What do you mean by eutrophication?

Eutrophication is the process in which, a water body is enriched with excessive nutrients, leading to profuse growth of plant life like algae. Eutrophication is considered a serious threat to life of organisms as it affects the quality of water and depletion of dissolved oxygen.

95. What is algal bloom?

Profuse growth of microscopic, unicellular algae in fresh water or marine water systems is called algal bloom. It prevents the entry of oxygen into the water body resulting in the deathof aquatic organisms. It also affects the quality of water making it unfitfor human consumption.

96. What effect can fertilizer runoff have on an aquatic ecosystem?

Ecosystems, especially aquatic systems, can be severely affected or destroyed by water pollution. Water pollutants affect existing niches and habitats and the survival of organisms. Soil fertility is affected and the system becomes uninhabitable.

97. What do you mean by ecosan toilets?

Ecological sanitation (Ecosan) is a sustainable system for handling human excreta by using dry composting toilets. Ecosan toilets not only reduce wastewater generation but also generate the natural fertilizer from recycled human excreta, which forms an excellent substitute for chemical fertilizers.

98. Say about global warming.

Increase in the concentrations of greenhouse gases such as CO_2, methane, nitrous oxide, CFCs, and ozone causes greenhouse effect, warming of the earth, resulting in sea level rise, submerging of islands and sea shores of various parts of the world.

99. What is ozone depletion? What does it cause?

Thinning of the stratospheric ozone layer is known as ozone depletion. Such depletion causes the 'ozone hole', resulting in poor screening of the harmful UV rays and increase in incidences of skin cancer. Some of the common agents that deplete ozone are CFCs.

100. What are plastics? What is the remedy to reduce pollution by plastics?

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Plastics are low molecular weight organic polymers that are non-degradable in the natural environment.

Remedies: '4R'- Refuse, Reduce, Reuse and Recycle mantra is the best available remedy for plastic waste pollution.

As far as possible we can avoid using plastics. Now a days plastic is substituted by materials, which are degradable and eco-friendly. Hence, we should use them instead of plastics.

5 MARK QUESTIONS:

101. How is fog harmful to us?

- **It reduces visibility on roads and streets.**
- **Smog can make breathing more difficult, especially for people with asthma.**
- **Smog also affects plants and animals.**
- **It damages crops as well as causes health problems in pets, farm animals and human beings.**
- **Smog has also been known to cause corrosive damage to buildings and vehicles.**

102. List all the wastes that you generate, at home, school or during your trips to other places. Could you very easily reduce the generation of these wastes? Which would be difficult or rather impossible to reduce?

Place	Kind of wastes
Home	Food wastes, plastics, paper, glass, leather, cardboard, metals, yard wastes, ashes, tires, batteries, old mattresses
School	Wood, paper, metals, cardboard materials, electronics
During trips	Food, paper cups and plates, plastics, polythene etc.

Yes, it is possible to reduce the generation of these wastes by limiting their usage. All degradable wastes generated can be converted into useful compost, which can be done easily at home and at school as well. It is rather impossible to reduce plastic usage. They are used in several items, including cars, bulletproof vests, toys, hospital equipment, carry bags and food containers. Plastic waste constitutes a major part of municipal solid waste.

103. Discuss the role of an individual to reduce environmental pollution.

- ✓ **Public awareness and its involvement are important to reduce**

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environmental pollution.

- ✓ It is better to reduce wastes generation rather than the cleaning up process.
- ✓ Public cooperation plays a crucial role by following government's plans and schemes and strictly adhering to norms and regulations by the state and central government regarding clean environment.
- ✓ Planting more trees in and around residential areas.
- ✓ Indoor plants will improve the quality of air indoors.
- ✓ 4 'R' – Refuse, Reduce, Reuse and Recycle is the best available remedy to reduce environmental pollution.

104. What are some solutions to toxic dumping in our oceans?

- ✓ Regulate or control of pollutants discharge at the point of generation.
- ✓ Wastewater can be pre-treated by scientific methods before discharge to municipal treatment sources.
- ✓ Setting up of Sewage Treatment Plants (STP) and Effluent Treatment Plants (ETP).
- ✓ Regulate or restrict the use of synthetic fertilizers and pesticides.
- ✓ Public awareness and peoples' involvement is essential.

ALL THE BEST!

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THANK YOU!