INTERDISCIPLINARY SUBJECT

ENVIRONMENTAL SCIENCE: 3RD SEMESTER: FULL MARKS 100

Unit 1: Ecology and Ecosystem

1. The physicochemical component of an ecosystem includes:

a) Producers and consumers

b) Temperature, water, and soil minerals

c) Decomposers and detritivores

d) All living organisms

Answer: b

2. The biological components of an ecosystem are best described as:

a) Abiotic factors

b) The community of living organisms and their interactions

c) Only the plant life

d) The climatic conditions

Answer: b

3. The primary source of energy for most ecosystems is:

a) Geothermal heat

b) The Sun

c) Chemical energy from rocks

d) Wind

Answer: b

4. In an ecosystem, the flow of energy is:

a) Cyclic

b) Unidirectional, from sun to producers to consumers

c) Bidirectional

d) Multidirectional with no pattern

Answer: b

5. Which of the following is a biogeochemical cycle?

a) Energy flow cycle

b) Water cycle

c) Food chain cycle

d) Life cycle

Answer: b

6. The process where water changes from liquid to vapor and enters the atmosphere is called:

a) Condensation

b) Precipitation

c) Evaporation

d) Transpiration

Answer: c

7. A forest ecosystem is characterized by:

a) Low rainfall and sparse vegetation

b) A dense growth of trees and high biodiversity

c) Dominance of grasses and herbivores

d) Saline water and mangrove plants

Answer: b

8. An aquatic ecosystem found where freshwater from rivers meets and mixes with saltwater from the ocean is called a(n):

a) Desert

b) Grassland

c) Estuary

d) Tundra

Answer: c

9. The process of gradual and fairly predictable change in the species composition of a given area is called:

a) Ecological succession

b) Biological magnification

c) Energy flow

d) Nutrient cycling

Answer: a

10. The final, stable community in ecological succession that is in equilibrium with the environment is the:

a) Pioneer community

b) Seral community

c) Climax community

d) Primary community

Answer: c

11. Which of the following is a major biome characterized by low precipitation and extreme temperatures?

a) Tropical Rainforest

b) Desert

c) Tundra

d) Grassland

Answer: b

12. The base of most food chains in an ecosystem is formed by:

a) Carnivores

b) Herbivores

c) Producers (Autotrophs)

d) Decomposers

Answer: c

13. The nitrogen in the atmosphere is fixed into a usable form for plants primarily by:

a) Lightning and industrial processes

b) Denitrifying bacteria

c) Ammonification

d) Nitrifying bacteria

Answer: a

14. Which of the following best describes a wetland ecosystem?

a) An area permanently saturated or filled with water

b) A dry, sandy region with cacti

c) A vast open area covered with grasses

d) A region dominated by tall trees

Answer: a

15. The process of release of water vapor from plant leaves into the atmosphere is known as:

a) Evaporation

b) Condensation

c) Transpiration

d) Precipitation

Answer: c

16. In a food chain, herbivores are classified as:

a) Primary consumers

b) Secondary consumers

c) Tertiary consumers

d) Producers

Answer: a

17. The carbon cycle is primarily concerned with the exchange of carbon between the atmosphere and:

a) The Earth's core

b) Living organisms, oceans, and soil

c) Only the fossil fuels

d) Only the plants

Answer: b

18. Which biome is known for having permafrost and low-growing vegetation like mosses and lichens?

a) Taiga

b) Tundra

c) Temperate Deciduous Forest

d) Savanna

Answer: b

19. The first organisms to colonize a barren rock surface are called:

a) Climax species

b) Pioneer species

c) Seral species

d) Keystone species

Answer: b

20. The total amount of living material in a given trophic level is called the:

a) Energy flow

b) Biomass

c) Productivity

d) Standing crop

Answer: b

21. Which of these is an example of a physicochemical factor?

a) A rabbit

b) Sunlight

c) A fungus

d) A predator-prey relationship

Answer: b

22. The biological component that breaks down dead organic matter is the:

a) Producer

b) Consumer

c) Decomposer

d) Herbivore

Answer: c

23. The 10% energy transfer rule in a food chain explains that:

a) 10% of the sun's energy is captured by producers

b) Only about 10% of the energy is transferred from one trophic level to the next

c) 90% of energy is transferred to the next level

d) Energy flow is 100% efficient

Answer: b

24. The phosphorus cycle is considered a sedimentary cycle because its main reservoir is in:

a) The atmosphere

b) Rocks and sediments

c) Living organisms

d) Ocean water

Answer: b

25. A grassland ecosystem is dominated by:

a) Trees

b) Grasses

c) Cacti

d) Algae

Answer: b

26. Lentic ecosystems refer to:

a) Flowing water ecosystems

b) Standing water ecosystems

c) Marine ecosystems

d) Desert ecosystems

Answer: b

27. Secondary succession occurs on:

a) Bare rock with no soil

b) Newly cooled lava

c) An abandoned farmland or a forest after a fire

d) A freshly created pond

Answer: c

28. A biome characterized by coniferous forests and long, cold winters is the:

a) Tropical Rainforest

b) Tundra

c) Taiga (Boreal Forest)

d) Desert

Answer: c

29. The process by which bacteria convert ammonia to nitrites and then to nitrates is called:

a) Nitrogen fixation

b) Denitrification

c) Nitrification

d) Ammonification

Answer: c

30. An estuary is highly productive because of:

a) High levels of pollution

b) The mixing of nutrients from land and sea

c) The absence of predators

d) Constant high salinity

Answer: b

31. Which of the following is NOT an abiotic component?

a) pH of soil

b) Humidity

c) Earthworm

d) Solar radiation

Answer: c

32. The interconnected feeding relationships in an ecosystem form a:

a) Food chain

b) Food web

c) Energy pyramid

d) Trophic level

Answer: b

33. The process by which carbon is returned to the atmosphere is:

a) Photosynthesis

b) Respiration and combustion

c) Nitrogen fixation

d) Evaporation

Answer: b

34. Lotic ecosystems include:

a) Lakes and ponds

b) Rivers and streams

c) Oceans and seas

d) Swamps and marshes

Answer: b

35. Hydrarch succession refers to succession starting in:

a) A dry area

b) A water body

c) A bare rock

d) A sandy area

Answer: b

36. The concept of ecological succession was developed by:

a) Charles Darwin

b) E.P. Odum

c) A.G. Tansley

d) H.C. Cowles and F.E. Clements

Answer: d

37. Which biome has the highest biodiversity?

a) Desert

b) Tundra

c) Tropical Rainforest

d) Grassland

Answer: c

38. The conversion of nitrates back into atmospheric nitrogen is carried out by:

a) Nitrifying bacteria

b) Denitrifying bacteria

c) Nitrogen-fixing bacteria

d) Ammonifying bacteria

Answer: b

39. Mangrove forests are typically found in:

a) Estuaries and coastal areas

b) High mountain ranges

c) Temperate grasslands

d) Freshwater lakes

Answer: a

40. The stable, end point of succession is determined by the:

a) Pioneer species

b) Climate of the region

c) Type of rock

d) Speed of the process

Answer: b

41. The physical and chemical environment along with the biological community forms an:

a) Population

b) Ecosystem

c) Biome

d) Biosphere

Answer: b

42. The role an organism plays in its ecosystem is its:

a) Niche

b) Habitat

c) Trophic level

d) Biomass

Answer: a

43. The energy flow in an ecosystem is best represented by a(n):

a) Pyramid of numbers

b) Pyramid of biomass

c) Pyramid of energy

d) Food web

Answer: c

44. The main reservoir for the water cycle is:

a) The atmosphere

b) Rivers and lakes

c) The oceans

d) Glaciers

Answer: c

45. A desert ecosystem is characterized by:

a) High rainfall and dense vegetation

b) Scarcity of water and specialized plants

c) Permafrost and low-growing plants

d) Large trees and high humidity

Answer: b

46. The Sundarbans is a classic example of which type of ecosystem?

a) Grassland

b) Mangrove forest (Wetland)

c) Desert

d) Alpine forest

Answer: b

47. Xerarch succession begins on:

a) Water

b) Bare rock

c) Sand dunes

d) Both b and c

Answer: d

48. Which of the following is a characteristic of a climax community?

a) It has low species diversity.

b) It is unstable and changes rapidly.

c) It is in a state of equilibrium with the environment.

d) It consists only of pioneer species.

Answer: c

49. The Savanna biome is a type of:

a) Forest

b) Grassland with scattered trees

c) Desert

d) Tundra

Answer: b

50. The process where bacteria convert organic nitrogen into ammonia is:

a) Nitrification

b) Denitrification

c) Ammonification

d) Nitrogen fixation

Answer: c

51. Which of these is a biotic component?

a) Soil mineral

b) Algae

c) Rainfall

d) Sunlight

Answer: b

52. In an ecosystem, the primary consumers are always:

a) Carnivores

b) Herbivores

c) Omnivores

d) Decomposers

Answer: b

53. The process by which producers convert solar energy into chemical energy is:

a) Chemosynthesis

b) Decomposition

c) Photosynthesis

d) Respiration

Answer: c

54. The main process adding water vapor to the atmosphere from soil and water bodies is:

a) Transpiration

b) Evaporation

c) Precipitation

d) Condensation

Answer: b

55. A pond is an example of a(n) _____ ecosystem.

a) Terrestrial

b) Aquatic (Lentic)

c) Aquatic (Lotic)

d) Estuarine

Answer: b

56. Lichens are typical pioneer species in _____ succession.

a) Hydrarch

b) Xerarch

c) Secondary

d) Marine

Answer: b

57. The sequence of communities from the pioneer to the climax stage is called a(n):

a) Sere

b) Biome

c) Food chain

d) Energy pyramid

Answer: a

58. The temperate grassland biome in North America is known as the:

a) Savanna

b) Prairie

c) Steppe

d) Pampas

Answer: b

59. The largest reservoir of carbon is found in:

a) The atmosphere

b) Fossil fuels and sedimentary rocks

c) The oceans

d) Living biomass

Answer: b

60. Wetlands are important for all of the following EXCEPT:

a) Flood control

b) Water purification

c) Increasing soil erosion

d) Providing wildlife habitat

Answer: c

61. The structure of an ecosystem is comprised of:

a) Only food chains and webs

b) The living and non-living components and their organization

c) Only the energy flow patterns

d) Only the nutrient cycles

Answer: b

62. Which organism is a decomposer?

a) Eagle

b) Rabbit

c) Mushroom

d) Grass

Answer: c

63. The pyramid of energy is always:

a) Inverted

b) Upright

c) Spherical

d) Variable

Answer: b

64. The process of the water cycle that forms clouds is:

a) Evaporation

b) Condensation

c) Precipitation

d) Infiltration

Answer: b

65. An ecosystem with saltwater, high salinity, and large waves is a:

a) Freshwater lake

b) Marine ecosystem

c) Estuary

d) River

Answer: b

66. Primary succession takes a longer time than secondary succession because it:

a) Starts without any soil

b) Has more competition

c) Starts with a greater diversity of species

d) Occurs in water

Answer: a

67. In a trophic pyramid, the highest level contains:

a) The least energy and biomass

b) The most energy and biomass

c) Only producers

d) Only decomposers

Answer: a

68. The Chaparral biome is characterized by:

a) Hot, dry summers and mild, rainy winters

b) Year-round rain and heat

c) Long, cold winters and short summers

d) Extreme cold and permafrost

Answer: a

69. Human activities have significantly altered the global nitrogen cycle by:

a) Increasing natural nitrogen fixation

b) Using synthetic fertilizers

c) Promoting denitrification

d) Reducing ammonia in the atmosphere

Answer: b

70. The "kidneys of the landscape" is a term often used for:

a) Deserts

b) Mountains

c) Wetlands

d) Grasslands

Answer: c

71. The physical space where an organism lives is its:

a) Niche

b) Habitat

c) Ecosystem

d) Community

Answer: b

72. Which of the following is a primary consumer in a forest ecosystem?

a) Tiger

b) Deer

c) Snake

d) Eagle

Answer: b

73. The gross primary productivity of an ecosystem is the rate at which:

a) Consumers capture energy

b) Producers convert solar energy into chemical energy

c) Decomposers break down waste

d) Energy is lost as heat

Answer: b

74. The water held in the frozen state in glaciers and ice caps is part of the:

a) Atmospheric reservoir

b) Surface water reservoir

c) Groundwater reservoir

d) Cryospheric reservoir

Answer: d

75. Coral reefs are a type of _____ ecosystem.

a) Freshwater

b) Marine

c) Estuarine

d) Desert

Answer: b

76. The intermediate stages of ecological succession are called _____ stages.

a) Pioneer

b) Climax

c) Seral

d) Terminal

Answer: c

77. The number of trophic levels in an ecological pyramid is limited by the:

a) Amount of water

b) Availability of space

c) Amount of energy available at the base

d) Number of decomposers

Answer: c

78. The Deccan Plateau in India is an example of which biome?

a) Tropical Rainforest

b) Desert

c) Grassland

d) Tundra

Answer: b

79. The process of nitrogen fixation is essential because:

a) It creates ozone

b) It converts atmospheric nitrogen into a form plants can use

c) It removes carbon from the air

d) It causes acid rain

Answer: b

80. Ramsar Convention is specifically related to the conservation of:

a) Forests

b) Wetlands

c) Deserts

d) Mountains

Answer: b

81. The study of the interactions between organisms and their environment is called:

a) Geology

b) Ecology

c) Genetics

d) Evolution

Answer: b

82. A food chain always starts with:

a) A herbivore

b) A carnivore

c) A producer

d) The sun

Answer: c

83. Net primary productivity is calculated as:

a) GPP + Plant respiration

b) GPP - Plant respiration

c) Total energy captured by all trophic levels

d) Energy consumed by herbivores

Answer: b

84. The process where water returns to the Earth's surface as rain, snow, etc., is:

a) Evaporation

b) Condensation

c) Precipitation

d) Runoff

Answer: c

85. Which aquatic ecosystem has the highest salinity?

a) River

b) Lake

c) Estuary

d) Open ocean

Answer: d

86. Psammosere is a type of succession that begins on:

a) Bare rock

b) Sand dunes

c) In water

d) Burnt forest

Answer: b

87. The concept of the "climax community" suggests that succession is:

a) A random process

b) A directional and predictable process

c) Always very fast

d) Independent of climate

Answer: b

88. Which biome is known for its distinct wet and dry seasons and is home to large herds of herbivores?

a) Tundra

b) Taiga

c) Savanna

d) Desert

Answer: c

89. Eutrophication of water bodies is often caused by an excess of:

a) Carbon

b) Nitrogen and phosphorus

c) Oxygen

d) Salt

Answer: b

90. The Keoladeo National Park in Bharatpur is a famous:

a) Desert

b) Mangrove forest

c) Grassland

d) Wetland

Answer: d

91. The term "ecosystem" was coined by:

a) Charles Darwin

b) Arthur Tansley

c) Ernst Haeckel

d) Rachel Carson

Answer: b

92. In a lake ecosystem, phytoplankton are the:

a) Primary producers

b) Primary consumers

c) Secondary consumers

d) Decomposers

Answer: a

93. Which of the following pyramids can sometimes be inverted?

a) Pyramid of energy

b) Pyramid of biomass

c) Pyramid of numbers

d) All of the above

Answer: b

94. The process by which water moves through plants and is released as vapor is:

a) Evaporation

b) Transpiration

c) Precipitation

d) Condensation

Answer: b

95. An ecosystem that is a transition zone between a river and the sea is a(n):

a) Lake

b) Estuary

c) Ocean

d) Stream

Answer: b

96. The first step in primary succession on a bare rock is the growth of:

a) Grasses

b) Shrubs

c) Lichens

d) Trees

Answer: c

97. The pyramid of numbers in a grassland ecosystem is:

a) Upright

b) Inverted

c) Spindle-shaped

d) Irregular

Answer: a

98. The Himalayan region in India represents which major biome?

a) Desert

b) Alpine Tundra

c) Tropical Rainforest

d) Temperate Grassland

Answer: b

99. The Haber-Bosch process is significant because it:

a) Fixed nitrogen industrially for fertilizer production

b) Discovered the ozone layer

c) Measured global warming

d) Purified water on a large scale

Answer: a

100. The primary ecological service provided by estuaries is:

a) Nursery grounds for many marine species

b) Carbon sequestration in large trees

c) Providing timber

d) Generating geothermal energy

Answer: a

Unit 2: Biodiversity and its Conservation

101. Biodiversity at the genetic level within a species is known as:

a) Species diversity

b) Genetic diversity

c) Ecosystem diversity

d) Ecological diversity

Answer: b

102. The variety of species within a habitat or region is termed:

a) Genetic diversity

b) Species diversity

c) Ecosystem diversity

d) Community diversity

Answer: b

103. The variety of ecosystems in a given landscape describes:

a) Alpha diversity

b) Genetic diversity

c) Ecosystem diversity

d) Species richness

Answer: c

104. Which of the following has intrinsic value, meaning value for its own sake?

a) A medicinal plant

b) A beautiful landscape

c) Biodiversity itself

d) Timber from a forest

Answer: c

105. The most significant cause of biodiversity loss today is:

a) Natural disasters

b) Habitat loss and fragmentation

c) Climate change

d) Pollution

Answer: b

106. A species that is no longer found anywhere on Earth is:

a) Endangered

b) Vulnerable

c) Extinct

d) Rare

Answer: c

107. The term for a species that is found only in one specific geographic area and nowhere else is:

a) Exotic

b) Invasive

c) Endemic

d) Keystone

Answer: c

108. An invasive species is one that:

a) Is native to the area

b) Is introduced, spreads rapidly, and causes harm

c) Is always beneficial to the ecosystem

d) Is endangered

Answer: b

109. The organization that maintains the Red Data Book is the:

a) UNEP

b) WWF

c) IUCN

d) UNDP

Answer: c

110. The Red Data Book provides data on:

a) Economically important plants

b) Threatened and endangered species

c) Invasive species

d) All known animal species

Answer: b

111. A region with high levels of species endemism and facing significant threat is designated as a:

a) National Park

b) Biodiversity Hotspot

c) Wildlife Sanctuary

d) Biosphere Reserve

Answer: b

112. Conservation of biodiversity in the natural habitat is called:

a) Ex-situ conservation

b) In-situ conservation

c) Off-site conservation

d) Captive conservation

Answer: b

113. Which of the following is an example of in-situ conservation?

a) Botanical Garden

b) Seed Bank

c) National Park

d) Zoo

Answer: c

114. Conservation of species outside their natural habitats is known as:

a) In-situ conservation

b) Ex-situ conservation

c) Habitat conservation

d) Ecosystem conservation

Answer: b

115. A gene bank is used to preserve:

a) Whole animals

b) Genetic material (e.g., seeds, sperm, DNA)

c) Only plant specimens

d) Fossil records

Answer: b

116. The Western Ghats in India is identified as a:

a) World Heritage Site only

b) Biodiversity Coldspot

c) Global Biodiversity Hotspot

d) National Park

Answer: c

117. The value of biodiversity that includes resources like food, medicine, and timber is called its:

a) Aesthetic value

b) Ethical value

c) Direct consumptive use value

d) Indirect value

Answer: c

118. The 'Evil Quartet' of biodiversity loss does NOT include:

a) Habitat loss and fragmentation

b) Over-exploitation

c) Alien species invasions

d) Increased genetic diversity

Answer: d

119. A species that is likely to move into the endangered category in the near future if causal factors continue is classified as:

a) Extinct

b) Endangered

c) Vulnerable

d) Rare

Answer: c

120. The Himalayan yew (Taxus wallichiana) is a plant that became endangered due to its over-exploitation for:

a) Timber

b) The cancer-treatment drug, taxol

c) Ornamental flowers

d) Food

Answer: b

121. The one-horned rhinoceros is an endemic species to the grasslands of:

a) Western Ghats

b) Sundarbans

c) Assam and North Bengal

d) Thar Desert

Answer: c

122. Lantana camara in India is an example of a(n):

a) Endemic species

b) Keystone species

c) Invasive alien species

d) Endangered species

Answer: c

123. The IUCN Red List category for a species that is facing an extremely high risk of extinction in the wild is:

a) Vulnerable (VU)

b) Endangered (EN)

c) Critically Endangered (CR)

d) Near Threatened (NT)

Answer: c

124. How many biodiversity hotspots have been identified worldwide?

a) 12

b) 25

c) 36

d) 50

Answer: c

125. The 'Project Tiger' in India is a classic example of:

a) Ex-situ conservation

b) In-situ conservation

c) Gene banking

d) Seed storage

Answer: b

126. Which of the following is an ex-situ conservation method?

a) Wildlife Sanctuary

b) Biosphere Reserve

c) Sacred Grove

d) Cryopreservation

Answer: d

127. The Svalbard Global Seed Vault is located in:

a) India

b) Norway

c) USA

d) Brazil

Answer: b

128. The difference in DNA among individuals within a species is a measure of:

a) Species diversity

b) Genetic diversity

c) Ecosystem diversity

d) Ecological diversity

Answer: b

129. The number of different species present in an area is referred to as:

a) Species evenness

b) Species richness

c) Genetic diversity

d) Ecosystem stability

Answer: b

130. The value of biodiversity in maintaining ecosystem services like pollination and climate regulation is its:

a) Direct value

b) Indirect value

c) Aesthetic value

d) Ethical value

Answer: b

131. Which human activity is a major driver of habitat fragmentation?

a) Building roads and dams

b) Creating national parks

c) Establishing seed banks

d) Conducting biodiversity surveys

Answer: a

132. A species that has a small population and is not currently endangered or vulnerable, but is at risk, is called:

a) Extinct

b) Rare

c) Endangered

d) Vulnerable

Answer: b

133. The Lion-tailed Macaque is an endemic species of the:

a) Himalayas

b) Western Ghats

c) Thar Desert

d) Gangetic Plains

Answer: b

134. The introduction of which invasive species has threatened the native bird populations on many islands by preying on eggs?

a) African Catfish

b) Water Hyacinth

c) Black Rat

d) Nile Perch

Answer: c

135. The IUCN Red List category "Data Deficient (DD)" means:

a) The species is safe

b) There is not enough information to assess its risk of extinction

c) The species is extinct

d) The species is only found in captivity

Answer: b

136. To be designated a biodiversity hotspot, a region must meet two criteria: high endemism and:

a) High human population density

b) Significant habitat loss

c) Low species richness

d) Presence of large mammals

Answer: b

137. Sacred Groves in India are a traditional form of:

a) Ex-situ conservation

b) In-situ conservation

c) Zoological parks

d) Gene banks

Answer: b

138. Which of the following is NOT an ex-situ conservation site?

a) Zoo

b) Botanical Garden

c) National Park

d) Seed Bank

Answer: c

139. The primary purpose of a seed bank is to:

a) Sell seeds for profit

b) Preserve genetic diversity of plants for future use

c) Grow plants for immediate consumption

d) Conduct genetic engineering

Answer: b

140. The Himalayas and the Western Ghats are both recognized as:

a) Deserts

b) Biodiversity Coldspots

c) Global Biodiversity Hotspots

d) Regions with no endemic species

Answer: c

141. The variety of life forms at all levels of organization is the definition of:

a) Ecology

b) Ecosystem

c) Biodiversity

d) Biome

Answer: c

142. The genetic diversity within a crop species is important for:

a) Aesthetic reasons only

b) Breeding programs for disease resistance

c) Increasing the number of zoos

d) Reducing the number of species

Answer: b

143. The aesthetic value of biodiversity includes:

a) The joy we get from a beautiful landscape

b) The economic value of timber

c) The cost of conservation

d) The value of genetic resources

Answer: a

144. Over-exploitation refers to:

a) Harvesting species at a rate faster than their natural reproduction

b) Protecting a species in a zoo

c) Introducing new species

d) Fragmenting a habitat

Answer: a

145. The Dodo bird is an example of a species that became extinct due primarily to:

a) Climate change

b) Habitat loss and over-exploitation by humans

c) An invasive disease

d) Natural selection

Answer: b

146. The Nilgiri Tahr is an endemic species found in the:

a) Eastern Ghats

b) Western Ghats

c) Thar Desert

d) Sundarbans

Answer: b

147. Water Hyacinth (Eichhornia crassipes) is an invasive species that clogs waterways. It was introduced as a(n):

a) Food source

b) Ornamental plant

c) Biological control agent

d) Medicine

Answer: b

148. According to the IUCN Red List, a species that is "Extinct in the Wild" (EW):

a) No longer exists anywhere

b) Only survives in captivity

c) Is found only in botanical gardens

d) Is common in its natural habitat

Answer: b

149. The "Hotspot" concept was developed by:

a) Norman Myers

b) E.O. Wilson

c) Rachel Carson

d) Aldo Leopold

Answer: a

150. A protected area where human activities are allowed to a limited extent is a:

a) Wildlife Sanctuary

b) National Park

c) Biosphere Reserve

d) Sacred Grove

Answer: c

151. Which of the following is a purpose of a zoological park (zoo) in conservation?

a) Habitat destruction

b) Captive breeding of endangered species

c) Promoting invasive species

d) Over-exploitation of animals

Answer: b

152. The National Gene Bank in India is located at:

a) Kolkata

b) New Delhi

c) Karnal

d) Chennai

Answer: c

153. The term 'biodiversity' was popularized by:

a) Arthur Tansley

b) Walter G. Rosen

c) E.O. Wilson

d) Charles Darwin

Answer: b

154. The diversity within a single population of wolves is an example of:

a) Ecosystem diversity

b) Species diversity

c) Genetic diversity

d) Landscape diversity

Answer: c

155. The ethical value of biodiversity suggests that:

a) Every species has an intrinsic right to exist

b) Species are only valuable for human use

c) Only beautiful species should be conserved

d) Conservation is too expensive

Answer: a

156. Co-extinction occurs when:

a) A species goes extinct due to natural causes

b) The extinction of one species leads to the extinction of another

c) Many species go extinct at once

d) A species is hunted to extinction

Answer: b

157. The Great Indian Bustard is a critically endangered bird found in the _____ region of India.

a) Himalayan

b) Grassland and desert

c) Wetland

d) Dense forest

Answer: b

158. The introduction of the Nile Perch into Lake Victoria led to the extinction of many species of:

a) Birds

b) Cichlid fish

c) Amphibians

d) Mammals

Answer: b

159. The IUCN Red List category "Least Concern (LC)" means the species is:

a) Widespread and abundant

b) Critically endangered

c) Data deficient

d) Extinct

Answer: a

160. The Indo-Burma region is a biodiversity hotspot that includes parts of:

a) Only India

b) India and its neighboring countries in Southeast Asia

c) Only Africa

d) South America

Answer: b

161. The core area of a Biosphere Reserve is:

a) Where no human activity is allowed

b) For tourism and recreation

c) For settlements and agriculture

d) A buffer zone

Answer: a

162. Cryopreservation is a method used in ex-situ conservation to preserve:

a) Whole ecosystems

b) Living tissues at very low temperatures

c) Only large mammals

d) Fossil fuels

Answer: b

163. The three hierarchical levels of biodiversity are:

a) Alpha, Beta, Gamma

b) Genetic, Species, Ecosystem

c) Local, Regional, Global

d) Flora, Fauna, Microbes

Answer: b

164. The variety of alleles within a population of cotton is an example of:

a) Species diversity

b) Genetic diversity

c) Ecosystem diversity

d) Crop diversity

Answer: b

165. The value of biodiversity for future generations, potentially providing new medicines or foods, is its:

a) Option value

b) Direct value

c) Aesthetic value

d) Ethical value

Answer: a

166. Pollution can cause biodiversity loss by:

a) Directly poisoning organisms

b) Altering habitats

c) Both a and b

d) Increasing genetic diversity

Answer: c

167. A species that is found in a particular area and has a relatively small population is termed:

a) Endemic

b) Rare

c) Vulnerable

d) Extinct

Answer: b

168. The Asiatic Lion is endemic to the Gir forest in:

a) Karnataka

b) Gujarat

c) Madhya Pradesh

d) Rajasthan

Answer: b

169. The African Catfish (Clarias gariepinus), introduced in India for aquaculture, has become a threat because it:

a) Is a good food source

b) Preys on native fish species

c) Improves water quality

d) Is an endemic species

Answer: b

170. The Red Data Book lists species under categories of threat. Which category is the most critical?

a) Vulnerable (VU)

b) Endangered (EN)

c) Critically Endangered (CR)

d) Near Threatened (NT)

Answer: c

171. The Cape Floristic Region, a biodiversity hotspot, is located in:

a) India

b) South Africa

c) Brazil

d) Australia

Answer: b

172. Which of the following is the main objective of a Wildlife Sanctuary?

a) To protect a particular species or group of species

b) To allow commercial forestry

c) To promote mass tourism

d) To conduct large-scale agriculture

Answer: a

173. Tissue culture is a biotechnological method used in _____ conservation.

a) In-situ

b) Ex-situ

c) Habitat

d) Ecosystem

Answer: b

174. The term 'biological diversity' was first used by:

a) G. Evelyn Hutchinson

b) Thomas Lovejoy

c) E.O. Wilson

d) Walter G. Rosen

Answer: b

175. The diversity of forest, grassland, and desert ecosystems within a country represents its:

a) Genetic diversity

b) Species diversity

c) Ecosystem diversity

d) Alpha diversity

Answer: c

176. The 'rivet popper hypothesis' is used to explain:

a) The importance of species diversity in ecosystem functioning

b) The process of evolution

c) The causes of habitat fragmentation

d) The benefits of ex-situ conservation

Answer: a

177. The 'Sixth Mass Extinction' is different from previous ones because it is caused by:

a) Asteroid impacts

b) Volcanic activity

c) Human activities

d) Natural climate cycles

Answer: c

178. The Hangul, or Kashmir Stag, is an endangered species found in:

a) Western Ghats

b) Dachigam National Park, Jammu & Kashmir

c) Sundarbans

d) Thar Desert

Answer: b

179. The Rosy Periwinkle (Catharanthus roseus), a plant endemic to Madagascar, is famous for providing drugs used to treat:

a) Malaria

b) Cancer

c) Diabetes

d) Heart disease

Answer: b

180. The IUCN Red List is a critical indicator of the health of the world's:

a) Economy

b) Biodiversity

c) Climate

d) Political systems

Answer: b

181. The Mediterranean Basin is an example of a:

a) Cold desert

b) Biodiversity hotspot

c) Newly formed ecosystem

d) Region with no endemic species

Answer: b

182. The main difference between a National Park and a Wildlife Sanctuary is that in a National Park:

a) No human activity is allowed

b) Grazing is permitted

c) Private ownership is allowed

d) Forestry operations are continued

Answer: a

183. The Frozen Zoo is a concept related to:

a) Keeping animals in cold climates

b) Cryopreserving genetic material from animals

c) A zoo in Antarctica

d) Exhibiting ice sculptures of animals

Answer: b

184. The total number of biodiversity hotspots in India is:

a) 1

b) 2

c) 3

d) 4

Answer: d (Himalayas, Indo-Burma, Western Ghats, Sundaland)

185. Which of the following is a measure of species diversity that takes into account both richness and evenness?

a) Simpson's Index

b) Species count

c) Genetic drift

d) Trophic level

Answer: a

186. The term 'bioprospecting' refers to:

a) Exploring molecular, genetic, and species-level diversity for products of economic value

b) Protecting biodiversity in hotspots

c) The illegal trade of wildlife

d) Creating new ecosystems

Answer: a

187. The Javan Rhino was declared extinct in India from:

a) Kaziranga National Park

b) Sundarbans

c) Manas National Park

d) Pobitora Wildlife Sanctuary

Answer: a

188. The IUCN Red List category for a species that has been evaluated but does not qualify for any other category is:

a) Not Evaluated (NE)

b) Data Deficient (DD)

c) Least Concern (LC)

d) Near Threatened (NT)

Answer: c

189. The concept of 'biodiversity hotspot' was conceived to prioritize conservation efforts in areas with:

a) Low species richness and high threat

b) High species richness and low threat

c) High endemism and high threat

d) Low endemism and low threat

Answer: c

190. The 'Project Elephant' in India is an example of:

a) Ex-situ conservation

b) In-situ conservation

c) Captive breeding only

d) Habitat destruction

Answer: b

191. Which of the following is a key advantage of in-situ conservation over ex-situ?

a) It is cheaper

b) It protects the entire ecosystem and allows for continued evolution

c) It is easier to manage

d) It does not require legal protection

Answer: b

192. The National Animal Genetic Resource Centre in India is situated in:

a) Karnal

b) Hyderabad

c) Bangalore

d) Lucknow

Answer: a

193. The variety of life forms, the ecological roles they perform, and the genetic diversity they contain is collectively known as:

a) Biosphere

b) Biome

c) Biodiversity

d) Bioconservation

Answer: c

194. The loss of genetic diversity within a crop species can make it more susceptible to:

a) Pests and diseases

b) Increased yield

c) Better taste

d) Faster growth

Answer: a

195. The existence value of biodiversity is a type of:

a) Direct use value

b) Indirect use value

c) Non-use value

d) Aesthetic value

Answer: c

196. The 'Alien species' invasions are a threat to biodiversity because they:

a) Increase native species population

b) Compete with native species for resources

c) Always have a positive impact

d) Are always harmless

Answer: b

197. The Bengal Tiger is listed as _____ on the IUCN Red List.

a) Vulnerable

b) Endangered

c) Critically Endangered

d) Extinct in the Wild

Answer: b

198. The 'Red Data Book' provides a list of:

a) All known species

b) Threatened species

c) Economically important species

d) Invasive species

Answer: b

199. The Wallacea region, a biodiversity hotspot, is located in:

a) North America

b) Central Africa

c) Southeast Asia (Indonesia)

d) Europe

Answer: c

200. The main purpose of a Biosphere Reserve is to:

a) Promote commercial exploitation

b) Combine conservation with sustainable development

c) Serve as a core area for tourism only

d) Protect a single species

Answer: b

Unit 3: Ecological Services and Livelihood

201. The four major categories of ecosystem services are:

a) Provisioning, Regulating, Cultural, and Supporting

b) Primary, Secondary, Tertiary, and Quaternary

c) Local, Regional, National, and Global

d) Air, Water, Land, and Fire

Answer: a

202. The provision of food, water, and timber by ecosystems is a _____ service.

a) Regulating

b) Cultural

c) Provisioning

d) Supporting

Answer: c

203. Services such as climate regulation, flood control, and water purification are classified as _____ services.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: b

204. The non-material benefits people obtain from ecosystems, such as recreation and spiritual enrichment, are _____ services.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: c

205. The services that are necessary for the production of all other ecosystem services, such as soil formation and nutrient cycling, are called _____ services.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: d

206. The economics of ecosystem services involves assigning:

a) A monetary value to the benefits humans receive from nature

b) A value only to tangible goods

c) No value to nature

d) Value only to cultural services

Answer: a

207. The process by which ecosystems capture and store carbon is known as:

a) Carbon sequestration

b) Carbon emission

c) Carbon trading

d) Carbon fixation

Answer: a

208. Which ecosystem is particularly known for its high capacity for carbon sequestration and storage?

a) Desert

b) Forest

c) Coral reef

d) Grassland

Answer: b

209. The aesthetic value of a beautiful mountain landscape is an example of a _____ service.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: c

210. Wetlands provide the important regulating service of:

a) Timber production

b) Flood control by absorbing excess water

c) Providing agricultural land

d) Generating electricity

Answer: b

211. The concept of 'ecosystem goods' refers to:

a) The tangible products obtained from ecosystems

b) Only the regulatory functions

c) Only the cultural services

d) The process of decomposition

Answer: a

212. Mountain ecosystems provide the critical service of:

a) Being the source of most major rivers (water towers)

b) Providing flat land for agriculture

c) Sequestering the least amount of carbon

d) Having low biodiversity

Answer: a

213. Forest ecosystems contribute to livelihoods by providing:

a) Non-Timber Forest Products (NTFPs) like fruits, resins, and medicines

b) Only timber for construction

c) No direct benefits to humans

d) Only cultural services

Answer: a

214. Ecotourism is a form of tourism that:

a) Aims to minimize impact and support conservation

b) Focuses on large-scale resort development

c) Ignores local communities

d) Promotes mass tourism in fragile areas

Answer: a

215. The service of pollination by bees and other insects is a _____ service.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: b

216. The total value of ecosystem services is often:

a) Less than the value of man-made services

b) Not considered in economic decisions

c) Greater than the global Gross Domestic Product (GDP)

d) Easy to calculate precisely

Answer: c

217. The 'water supply' service of an ecosystem is a _____ service.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: a

218. The purification of air by forests is a _____ service.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: b

219. The spiritual and religious significance of a sacred grove is a _____ service.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: c

220. Mangrove forests provide the regulating service of:

a) Coastal protection from storms and erosion

b) Freshwater supply

c) Carbon release

d) Increasing soil salinity

Answer: a

221. Which of the following is an example of a supporting service?

a) Production of fish

b) Soil formation

c) Recreational hiking

d) Climate regulation

Answer: b

222. The concept of Payment for Ecosystem Services (PES) involves:

a) Paying people to degrade ecosystems

b) Providing incentives to landowners to manage land for ecosystem services

c) Charging people for using natural resources illegally

d) Eliminating all economic value of nature

Answer: b

223. Desert ecosystems can provide provisioning services such as:

a) Large timber

b) Freshwater fish

c) Medicinal plants adapted to arid conditions

d) Regulation of heavy rainfall

Answer: c

224. The primary ecological service of a wetland that directly supports livelihoods is:

a) Providing habitat for fish and other resources

b) Emitting methane gas

c) Acting as a barrier to navigation

d) Increasing flood peaks

Answer: a

225. The 'sediment regulation' service of ecosystems helps in:

a) Preventing soil erosion and siltation of reservoirs

b) Increasing turbidity in water

c) Speeding up desertification

d) Reducing groundwater recharge

Answer: a

226. Mountain ecosystems are crucial for the service of:

a) Biodiversity conservation due to high endemism

b) Providing flat land for urban sprawl

c) Generating large amounts of industrial waste

d) Having uniform climate

Answer: a

227. The main economic benefit of ecotourism is that it:

a) Provides revenue and employment for local communities

b) Leads to habitat destruction

c) Relies solely on foreign investment

d) Discourages conservation

Answer: a

228. The service of nutrient cycling is a _____ service.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: d

229. The 'TEEB' initiative stands for:

a) The Tropical Ecosystem and Environment Board

b) The Economics of Ecosystems and Biodiversity

c) Total Economic and Environmental Balance

d) Terrestrial Ecosystem Evaluation Bureau

Answer: b

230. Which of the following is a cultural service provided by urban parks?

a) Space for recreation and mental well-being

b) Large-scale food production

c) Carbon dioxide emission

d) Water pollution

Answer: a

231. The provision of genetic resources for crop improvement is a _____ service.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: a

232. The control of pests by natural predators is a _____ service.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: b

233. The value of a healthy ecosystem in preventing costly natural disasters is an example of its:

a) Direct use value

b) Indirect use value

c) Option value

d) Existence value

Answer: b

234. The 'Himalayan ecosystem' provides the critical service of regulating the:

a) Climate of the Indian subcontinent

b) Ocean currents

c) Earth's rotation

d) Volcanic activity

Answer: a

235. The degradation of ecosystem services often impacts most severely:

a) Wealthy urban populations

b) Poor and rural communities who depend directly on them

c) Industrial corporations

d) International tourists

Answer: b

236. The service of photosynthesis, which produces oxygen, is a _____ service.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: d

237. The concept of 'natural capital' refers to:

a) Man-made infrastructure

b) The world's stocks of natural assets

c) Financial assets in banks

d) Human skills and knowledge

Answer: b

238. The 'recreation' service provided by a lake includes activities like:

a) Boating and fishing

b) Soil formation

c) Carbon sequestration

d) Nutrient cycling

Answer: a

239. The loss of forest cover can lead to a loss of the regulating service of:

a) Climate moderation

b) Increased soil erosion

c) Enhanced water purification

d) Increased agricultural yield

Answer: a

240. Sustainable livelihood approaches emphasize:

a) Building on the strengths of ecosystem services

b) Over-exploiting resources for short-term gain

c) Ignoring environmental constraints

d) Relying solely on external aid

Answer: a

241. Which of the following is NOT a provisioning service?

a) Fresh water

b) Food (e.g., crops, fish)

c) Climate regulation

d) Genetic resources

Answer: c

242. Decomposition of waste is primarily a _____ service.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: d

243. The 'Millennium Ecosystem Assessment' was a major global study of:

a) The stock market

b) The consequences of ecosystem change for human well-being

c) Astronomical phenomena

d) Political systems

Answer: b

244. The 'aesthetic views' provided by a landscape are a _____ service.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: c

245. Wetlands are often called 'biological supermarkets' because they:

a) Have high primary productivity and support diverse life

b) Sell goods at a low price

c) Are located in urban areas

d) Are devoid of life

Answer: a

246. The service of primary production is the foundation for:

a) All other ecosystem services

b) Only cultural services

c) Only provisioning services

d) Only regulating services

Answer: a

247. The economic value of an intact mangrove forest for storm protection is often _____ the value of converting it to an aquaculture pond.

a) Less than

b) Greater than

c) Equal to

d) Unrelated to

Answer: b

248. The 'spiritual and religious' values associated with nature are part of _____ services.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: c

249. The main challenge in incorporating ecosystem services into economic decision-making is:

a) Their value is often zero

b) Their value is not captured in traditional markets

c) They are too easy to value

d) They are only important for rich countries

Answer: b

250. Ecotourism, when managed properly, can provide financial incentives for:

a) Conservation of natural areas

b) Poaching of wildlife

c) Deforestation

d) Pollution

Answer: a

251. The production of oxygen by phytoplankton in the ocean is a _____ service.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: b

252. The 'seed dispersal' service performed by animals is a _____ service.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: d

253. The 'water purification' service of a wetland is an example of:

a) A service that replaces costly water treatment plants

b) A service with no economic value

c) A service that increases water pollution

d) A service only found in deserts

Answer: a

254. Forest ecosystems provide the service of 'carbon storage' which helps mitigate:

a) Climate change

b) Soil formation

c) Biodiversity loss

d) Earthquakes

Answer: a

255. The 'educational' value of a national park is a _____ service.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: c

256. The degradation of ecosystem services can be attributed to:

a) High demand and unsustainable use

b) Low human population

c) Excessive conservation efforts

d) Decreased economic activity

Answer: a

257. The service of 'soil formation' is slow and can take:

a) A few days

b) Hundreds to thousands of years

c) A few weeks

d) One year

Answer: b

258. The 'flood regulation' service of a forest involves:

a) Intercepting rainfall and allowing water to infiltrate the soil

b) Causing more floods

c) Increasing surface runoff

d) Removing vegetation cover

Answer: a

259. The concept of 'ecosystem services' helps to highlight:

a) The dependence of human economies on natural systems

b) The independence of humans from nature

c) That nature has no value

d) That services are only provided by technology

Answer: a

260. A key principle of ecotourism is:

a) Respect for local cultures

b) Ignoring environmental impacts

c) Maximizing tourist numbers at all costs

d) Building large hotels in core conservation areas

Answer: a

261. Which of the following is a direct link between ecological services and livelihood?

a) A fisherman catching fish for food and income

b) A factory producing cars

c) A software engineer writing code

d) A banker giving loans

Answer: a

262. The 'provisioning service' of freshwater is essential for:

a) All human activities, including drinking and agriculture

b) Only industrial use

c) Only cultural activities

d) Generating solar power

Answer: a

263. The 'regulating service' of climate regulation is provided by processes like:

a) Evapotranspiration and carbon sequestration

b) Only volcanic activity

c) Only ocean currents

d) The Earth's rotation

Answer: a

264. The 'cultural service' of 'sense of place' is:

a) The emotional connection people have to a particular ecosystem

b) The amount of rainfall a place receives

c) The temperature of a place

d) The soil type of a place

Answer: a

265. The 'supporting service' of 'habitat provision' is crucial for:

a) Maintaining biodiversity

b) Manufacturing goods

c) Urban development

d) Mining operations

Answer: a

266. The 'economics of biodiversity' is a field that tries to quantify the:

a) Value of all ecosystem services provided by biodiversity

b) Cost of conservation only

c) Price of individual animals

d) GDP of a country without considering nature

Answer: a

267. The 'aesthetic' value of a beach contributes to its use for:

a) Tourism and recreation

b) Agriculture

c) Waste disposal

d) Industrial development

Answer: a

268. The 'water cycle' is a fundamental _____ service.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: d

269. The loss of pollinators would directly impact the _____ service of ecosystems.

a) Provisioning (food production)

b) Regulating (climate)

c) Cultural (recreation)

d) Supporting (soil formation)

Answer: a

270. Sustainable management of ecosystem services is vital for:

a) Long-term human well-being and poverty alleviation

b) Short-term profit maximization

c) Increasing pollution

d) Reducing biodiversity

Answer: a

271. The service of 'disease regulation' by ecosystems can involve:

a) Controls on populations of disease vectors

b) Increasing the spread of diseases

c) Curing all human diseases

d) Replacing all hospitals

Answer: a

272. The 'existence value' of a species is a type of _____ value.

a) Direct use

b) Indirect use

c) Non-use

d) Aesthetic

Answer: c

273. The 'option value' of biodiversity refers to its potential for:

a) Future use, such as new medicines

b) Current use only

c) No use at all

d) Decreasing over time

Answer: a

274. The 'ecosystem goods' from a forest include:

a) Timber, fruits, and resins

b) Only carbon sequestration

c) Only climate regulation

d) Only spiritual values

Answer: a

275. The 'livelihood' of a tribal community dependent on forest resources is directly supported by _____ services.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: a

276. The 'bequest value' of an ecosystem is the value people place on:

a) Knowing it will be available for future generations

b) Using it up now

c) Its current market price

d) Its destruction

Answer: a

277. The main objective of valuing ecosystem services is to:

a) Make better, more informed decisions about resource use

b) Prove that they are worthless

c) Stop all economic development

d) Ignore environmental costs

Answer: a

278. The 'resilience' of an ecosystem, its ability to withstand disturbance, is a _____ service.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: b

279. The 'erosion control' service provided by plant roots is a _____ service.

a) Provisioning

b) Regulating

c) Cultural

d) Supporting

Answer: b

280. The concept that human well-being is built upon a foundation of 'natural capital' is central to:

a) Ecological economics

b) Traditional economics only

c) Political science

d) Classical mechanics

Answer: a

281. Which of the following is a 'provisioning service' of a grassland ecosystem?

a) Fodder for livestock

b) Climate regulation

c) Spiritual enrichment

d) Nutrient cycling

Answer: a

282. The 'cultural service' of 'inspiration' provided by nature influences:

a) Art, music, and literature

b) Soil formation rates

c) The water cycle

d) Carbon sequestration

Answer: a

283. The 'supporting service' of 'photosynthesis' is fundamental because it:

a) Converts solar energy into chemical energy usable by living organisms

b) Causes global warming

c) Leads to soil erosion

d) Purifies water directly

Answer: a

284. The 'Tragedy of the Commons' often occurs when:

a) Ecosystem services are overused because they are shared and not owned

b) Ecosystem services are valued correctly

c) Private ownership of resources leads to conservation

d) Governments regulate all resource use

Answer: a

285. The 'ecotourism' industry relies heavily on the _____ services of protected areas.

a) Cultural and provisioning

b) Regulating and supporting

c) Cultural and regulating

d) Only provisioning

Answer: a

286. The 'provisioning service' of 'medicinal resources' is particularly important for:

a) The pharmaceutical industry and traditional medicine

b) The construction industry

c) The IT sector

d) The automotive industry

Answer: a

287. The 'regulating service' of 'air quality maintenance' involves:

a) Plants absorbing pollutants and releasing oxygen

b) Factories emitting smoke

c) Cars releasing fumes

d) Burning fossil fuels

Answer: a

288. The 'cultural service' of 'recreation' includes:

a) Hiking, bird watching, and camping

b) Only extreme sports

c) Indoor activities only

d) Shopping malls

Answer: a

289. The 'supporting service' of 'nitrogen fixation' is performed by certain:

a) Bacteria

b) Animals

c) Fungi

d) Plants

Answer: a

290. A major threat to the continued provision of ecosystem services is:

a) Habitat destruction and degradation

b) Increased conservation efforts

c) Decreased human population

d) Sustainable farming practices

Answer: a

291. The 'provisioning service' of 'energy' from ecosystems includes:

a) Biomass fuels

b) Solar panels made in factories

c) Nuclear power

d) Coal mined from underground

Answer: a

292. The 'regulating service' of 'water purification' is provided by:

a) Wetlands and forests

b) Deserts only

c) Urban concrete surfaces

d) Agricultural fields with pesticides

Answer: a

293. The 'cultural service' of 'scientific discovery' is enabled by:

a) The study of diverse ecosystems and species

b) Laboratory experiments only

c) Computer simulations only

d) Theoretical physics only

Answer: a

294. The 'supporting service' of 'pollination' is essential for the production of many:

a) Fruits and vegetables

b) Grains only

c) Metals

d) Fossil fuels

Answer: a

295. The economic value of the 'regulating service' of coastal protection by mangroves becomes apparent after events like:

a) Tsunamis or cyclones

b) Earthquakes

c) Volcanic eruptions

d) Droughts

Answer: a

296. The 'livelihood' of a farmer is directly dependent on the _____ services of the agro-ecosystem.

a) Provisioning and regulating

b) Only cultural

c) Only supporting

d) Only existence value

Answer: a

297. The 'Millennium Ecosystem Assessment' concluded that nearly _____ of ecosystem services are being degraded or used unsustainably.

a) One-quarter

b) One-half

c) Two-thirds

d) 90%

Answer: c

298. The 'provisioning service' of 'raw materials' includes:

a) Wood, fibers, and oils

b) Only manufactured plastics

c) Only synthetic fibers

d) Only metals

Answer: a

299. The 'regulating service' of 'climate regulation' at a global scale involves the:

a) Carbon cycle

b) Nitrogen cycle

c) Water cycle only

d) Rock cycle

Answer: a

300. The ultimate goal of understanding ecological services is to promote:

a) Sustainable development and human well-being

b) Unlimited economic growth

c) The complete replacement of nature with technology

d) The isolation of humans from nature

Answer: a

Unit 4: Natural Hazards and Disaster Management

301. A 'hazard' is best defined as:

a) A serious disruption of the functioning of a community

b) A dangerous phenomenon that may cause loss of life or property

c) The assessment of potential losses

d) The ability to resist a disaster

Answer: b

302. A 'disaster' is defined as:

a) A potential threat

b) A serious disruption exceeding the community's ability to cope

c) A minor inconvenience

d) The same as a hazard

Answer: b

303. The concept of 'risk' in disaster management is a function of:

a) Hazard, vulnerability, and capacity

b) Hazard only

c) Vulnerability only

d) Capacity only

Answer: a

304. 'Vulnerability' refers to:

a) The characteristics that make a community susceptible to hazard impacts

b) The frequency of a hazard

c) The magnitude of a hazard

d) The resources available to cope

Answer: a

305. Natural hazards can be classified as:

a) Geological, Hydrological, Meteorological, Biological

b) Man-made only

c) Economic only

d) Social only

Answer: a

306. An earthquake is caused by:

a) The sudden release of energy in the Earth's crust

b) Heavy rainfall

c) Strong winds

d) Deforestation

Answer: a

307. The point on the Earth's surface directly above the earthquake's origin is the:

a) Focus

b) Epicenter

c) Fault line

d) Seismic gap

Answer: b

308. A tsunami is most often generated by:

a) Underwater earthquakes

b) Volcanic eruptions on land

c) Landslides on land

d) Cyclones

Answer: a

309. The mitigation measure for earthquakes includes:

a) Constructing earthquake-resistant buildings

b) Building houses on steep slopes

c) Ignoring building codes

d) Increasing population density in fault zones

Answer: a

310. A volcano is an opening in the Earth's crust through which _____ erupts.

a) Water

b) Lava, ash, and gases

c) Only gases

d) Only steam

Answer: b

311. The 'Ring of Fire' is associated with:

a) Earthquakes and volcanoes around the Pacific Ocean

b) Cyclones in the Atlantic

c) Droughts in Africa

d) Floods in Asia

Answer: a

312. A tropical cyclone is a intense storm system characterized by:

a) Low pressure center and strong winds

b) High pressure and calm winds

c) Dry conditions

d) Cold temperatures

Answer: a

313. The mitigation strategy for cyclones includes:

a) Early warning systems and storm shelters

b) Building houses with thatched roofs

c) Living very close to the coast

d) Cutting down mangrove forests

Answer: a

314. Floods can be caused by:

a) Heavy rainfall, storm surges, and dam failure

b) Lack of rainfall

c) Earthquakes only

d) Volcanic eruptions only

Answer: a

315. Structural mitigation for floods includes:

a) Construction of dams and levees

b) Deforestation in catchment areas

c) Building on floodplains

d) Filling up wetlands

Answer: a

316. Drought is a condition of:

a) Excess water

b) Prolonged deficiency of precipitation

c) High humidity

d) Frequent storms

Answer: b

317. Consequences of drought include:

a) Crop failure and water scarcity

b) Abundant harvests

c) Increased groundwater levels

d) Flooding of rivers

Answer: a

318. A landslide is the downslope movement of:

a) Air

b) Soil, rock, and debris

c) Water only

d) Lava

Answer: b

319. Landslides can be triggered by:

a) Earthquakes and heavy rainfall

b) Sunny weather

c) Low wind speed

d) High atmospheric pressure

Answer: a

320. A disaster management plan aims to:

a) Reduce the impact of disasters through preparedness and response

b) Cause more disasters

c) Ignore community needs

d) Work only after a disaster strikes

Answer: a

321. NIDM stands for:

a) National Institute of Disaster Management

b) National International Disaster Management

c) National Institute of Disease Management

d) National Indian Disaster Mitigation

Answer: a

322. The primary function of NIDM is:

a) To provide policy advice and promote training in disaster management

b) To forecast weather

c) To construct houses

d) To provide immediate relief only

Answer: a

323. NDMA stands for:

a) National Disaster Management Authority

b) National Disease Management Agency

c) National Drought Mitigation Association

d) National Department for Meteorological Affairs

Answer: a

324. The NDMA is responsible for:

a) Laying down policies and guidelines for disaster management in India

b) Managing only earthquakes

c) Managing only floods

d) International disaster response

Answer: a

325. The phases of disaster management are:

a) Mitigation, Preparedness, Response, Recovery

b) Only response

c) Only recovery

d) Hazard, Risk, Vulnerability

Answer: a

326. 'Mitigation' involves:

a) Actions taken to reduce the harmful effects of a disaster

b) Actions taken during a disaster

c) Actions taken after a disaster

d) Ignoring the hazard

Answer: a

327. 'Preparedness' includes:

a) Developing early warning systems and evacuation plans

b) Building houses after they collapse

c) Providing aid after the disaster

d) Assessing damage

Answer: a

328. 'Response' activities occur:

a) During and immediately after a disaster

b) Years before a disaster

c) Only before a disaster

d) Only for man-made disasters

Answer: a

329. 'Recovery' focuses on:

a) Restoring normalcy after a disaster

b) Predicting the next disaster

c) Causing more damage

d) Ignoring the community

Answer: a

330. An example of a biological hazard is:

a) Earthquake

b) Cyclone

c) Epidemic (e.g., pandemic)

d) Landslide

Answer: c

331. The Richter scale is used to measure the:

a) Intensity of an earthquake

b) Magnitude of an earthquake

c) Speed of a tsunami

d) Strength of a cyclone

Answer: b

332. The 'eye' of a cyclone is a region of:

a) Calm weather and low pressure

b) The most violent winds

c) Heavy rainfall

d) Tornadoes

Answer: a

333. Flash floods are characterized by:

a) Their slow onset

b) Their rapid onset in a short period

c) Occurring only in deserts

d) Being predictable months in advance

Answer: b

334. 'Desertification' can be a consequence of:

a) Drought and poor land management

b) Excessive rainfall

c) Afforestation

d) Sustainable agriculture

Answer: a

335. The main human factor that can trigger landslides is:

a) Deforestation and construction on slopes

b) Planting trees on slopes

c) Building terraces

d) Reducing soil erosion

Answer: a

336. The Sendai Framework for Disaster Risk Reduction focuses on:

a) Managing disasters after they occur

b) Preventing new and reducing existing disaster risk

c) Ignoring climate change

d) Promoting industrial development in hazard zones

Answer: b

337. An early warning system for cyclones can help in:

a) Timely evacuation of people

b) Causing panic

c) Increasing the cyclone's intensity

d) Stopping the cyclone

Answer: a

338. The 'Latur earthquake' occurred in the Indian state of:

a) Gujarat

b) Maharashtra

c) Bihar

d) Uttarakhand

Answer: b

339. The 'Super Cyclone' of 1999 caused widespread damage in:

a) Tamil Nadu

b) Odisha

c) Kerala

d) West Bengal

Answer: b

340. The 'Uttarakhand floods' of 2013 were a result of:

a) An extreme rainfall event

b) An earthquake

c) A volcanic eruption

d) A drought

Answer: a

341. The difference between a hazard and a disaster is that a disaster:

a) Is always natural

b) Causes significant damage and requires external help

c) Is always man-made

d) Has no impact on people

Answer: b

342. 'Capacity' in disaster management refers to:

a) The vulnerabilities of a community

b) The strengths and resources available to cope with a hazard

c) The magnitude of the hazard

d) The frequency of the hazard

Answer: b

343. A 'technological hazard' is:

a) A natural event

b) A hazard originating from technological or industrial conditions

c) A biological outbreak

d) A meteorological event

Answer: b

344. The point of origin of an earthquake inside the earth is called the:

a) Epicenter

b) Focus (Hypocenter)

c) Fault

d) Crust

Answer: b

345. Tsunami waves can travel:

a) Only a few kilometers

b) At high speeds across entire ocean basins

c) Only in deep water

d) Only during the day

Answer: b

346. 'Lahars' are destructive mudflows associated with:

a) Earthquakes

b) Volcanic eruptions

c) Cyclones

d) Droughts

Answer: b

347. The Saffir-Simpson scale is used to categorize:

a) Earthquakes

b) Hurricanes/Cyclones

c) Tornadoes

d) Floods

Answer: b

348. A 'storm surge' is:

a) A tornado on water

b) A rise in sea level due to a storm

c) A type of tsunami

d) A river flood

Answer: b

349. 'Afforestation' in catchment areas is a mitigation measure for:

a) Floods and landslides

b) Earthquakes

c) Volcanic eruptions

d) Cyclones

Answer: a

350. 'Rainwater harvesting' is a mitigation strategy for:

a) Floods

b) Droughts

c) Earthquakes

d) Tsunamis

Answer: b

351. The 'Chilika Lake' region in Odisha is vulnerable to which natural hazard?

a) Drought

b) Cyclones

c) Earthquakes

d) Landslides

Answer: b

352. The National Disaster Management Plan (NDMP) of India was first adopted in:

a) 2005

b) 2010

c) 2016

d) 2019

Answer: c

353. The 'Hyogo Framework for Action' was succeeded by the:

a) Sendai Framework

b) Paris Agreement

c) Kyoto Protocol

d) Montreal Protocol

Answer: a

354. The 'National Disaster Response Force (NDRF)' is specialized in:

a) Policy making

b) Disaster response and rescue operations

c) Long-term recovery

d) Weather forecasting

Answer: b

355. 'Vulnerability assessment' helps in:

a) Identifying areas and communities most at risk

b) Increasing the hazard

c) Reducing capacity

d) Ignoring risks

Answer: a

356. An example of a 'meteorological hazard' is a:

a) Tsunami

b) Landslide

c) Thunderstorm

d) Earthquake

Answer: c

357. The 'Modified Mercalli Intensity Scale' measures an earthquake's:

a) Magnitude

b) Effects on the Earth's surface and people

c) Depth

d) Duration

Answer: b

358. 'Pyroclastic flows' are a deadly hazard associated with:

a) Cyclones

b) Volcanic eruptions

c) Floods

d) Droughts

Answer: b

359. The 'Indian Ocean Tsunami' of 2004 was triggered by an earthquake off the coast of:

a) Japan

b) Indonesia

c) India

d) Sri Lanka

Answer: b

360. 'Cyclone shelters' are an example of a _____ measure.

a) Mitigation

b) Preparedness

c) Response

d) Recovery

Answer: a

361. 'Sandbags' are used during a flood event as a _____ measure.

a) Mitigation

b) Preparedness

c) Response

d) Recovery

Answer: c

362. The 'Drought Prone Areas Programme (DPAP)' is a _____ measure.

a) Mitigation

b) Preparedness

c) Response

d) Recovery

Answer: a

363. 'Terracing' on hill slopes is a method to prevent:

a) Earthquakes

b) Landslides and soil erosion

c) Cyclones

d) Tsunamis

Answer: b

364. The 'National Cyclone Risk Mitigation Project (NCRMP)' is implemented in:

a) Only the Himalayan states

b) Coastal states and Union Territories of India

c) Only desert areas

d) Only the northeastern states

Answer: b

365. The 'Seismic Zones' in India are classified into:

a) Zones I to V

b) Zones A to E

c) Zones 1 to 10

d) Red and Green zones

Answer: a

366. A 'doppler radar' is used for forecasting:

a) Earthquakes

b) Cyclones and severe weather

c) Landslides

d) Volcanic eruptions

Answer: b

367. The 'Cloudburst' phenomenon is associated with:

a) Sudden and very heavy rainfall

b) Drought

c) Earthquakes

d) Heatwaves

Answer: a

368. The 'Bhopal Gas Tragedy' of 1984 is an example of a:

a) Natural hazard

b) Technological (man-made) disaster

c) Meteorological hazard

d) Biological hazard

Answer: b

369. The 'National Policy on Disaster Management' was approved in India in:

a) 2005

b) 2009

c) 2014

d) 2016

Answer: b

370. 'Community-Based Disaster Risk Management (CBDRM)' emphasizes the role of:

a) International agencies only

b) The local community in preparedness and response

c) The national government only

d) Private corporations only

Answer: b

371. A 'hazard map' is a tool used in:

a) Response

b) Mitigation and preparedness planning

c) Recovery only

d) Ignoring risks

Answer: b

372. The 'Indian Tsunami Early Warning Centre (ITEWC)' is located in:

a) New Delhi

b) Hyderabad

c) Chennai

d) Mumbai

Answer: b

373. The 'Vulnerability Atlas of India' provides maps related to:

a) Economic growth

b) Housing types and disaster vulnerability

c) Tourist spots

d) Mineral resources

Answer: b

374. 'Retrofitting' of existing buildings is a _____ measure for earthquakes.

a) Mitigation

b) Preparedness

c) Response

d) Recovery

Answer: a

375. The 'National Disaster Management Act' was enacted in India in:

a) 2005

b) 2009

c) 1999

d) 2010

Answer: a

376. The 'Incident Response System (IRS)' is a standardized system for managing:

a) Long-term development

b) Disaster response

c) Economic policy

d) Educational curriculum

Answer: b

377. A 'mock drill' is an activity related to:

a) Mitigation

b) Preparedness

c) Response

d) Recovery

Answer: b

378. The 'National Remote Sensing Centre (NRSC)' uses _____ for disaster management.

a) Satellite technology

b) Underwater sensors

c) Weather balloons only

d) Ground-penetrating radar only

Answer: a

379. The 'Gujarat Earthquake' occurred in:

a) 1999

b) 2001

c) 2004

d) 2005

Answer: b

380. The 'Kedarnath tragedy' in 2013 was primarily a:

a) Flash flood and landslide disaster

b) Cyclone

c) Earthquake

d) Drought

Answer: a

381. The concept that "disasters are sometimes natural, but their impacts are often man-made" highlights the role of:

a) Hazard intensity

b) Human vulnerability

c) Planetary orbits

d) Solar flares

Answer: b

382. 'Risk Transfer' mechanisms include:

a) Insurance

b) Early warning systems

c) Evacuation plans

d) Building codes

Answer: a

383. The 'Pacific Tsunami Warning Center (PTWC)' is located in:

a) Japan

b) India

c) USA (Hawaii)

d) Indonesia

Answer: c

384. 'Land-use planning' is a crucial _____ measure for disaster risk reduction.

a) Mitigation

b) Preparedness

c) Response

d) Recovery

Answer: a

385. The 'National Disaster Management Authority (NDMA)' is headed by:

a) The President of India

b) The Prime Minister of India

c) The Home Minister

d) The Defence Minister

Answer: b

386. 'Epidemics' are considered _____ hazards.

a) Geological

b) Hydrological

c) Meteorological

d) Biological

Answer: d

387. The 'Indian Meteorological Department (IMD)' is responsible for forecasting:

a) Earthquakes

b) Cyclones and weather events

c) Landslides

d) Volcanic eruptions

Answer: b

388. 'Fire drills' in schools are a _____ activity.

a) Mitigation

b) Preparedness

c) Response

d) Recovery

Answer: b

389. The 'National Flood Risk Mitigation Project' aims to:

a) Increase flooding

b) Reduce vulnerability to floods

c) Promote construction in floodplains

d) Remove dams

Answer: b

390. 'Psychological first aid' is an important aspect of _____ after a disaster.

a) Mitigation

b) Preparedness

c) Response

d) Recovery

Answer: c

391. The 'Sendai Framework' prioritizes:

a) Response over preparedness

b) Understanding disaster risk

c) Ignoring climate change

d) Focusing only on earthquakes

Answer: b

392. 'Seismographs' are instruments that record:

a) Cyclones

b) Earthquakes

c) Flood levels

d) Wind speed

Answer: b

393. The 'Japan Meteorological Agency (JMA)' is renowned for its early warning system for:

a) Droughts

b) Tsunamis

c) Landslides

d) Heatwaves

Answer: b

394. 'Building codes' are a form of _____ for reducing earthquake risk.

a) Mitigation

b) Preparedness

c) Response

d) Recovery

Answer: a

395. The 'National Disaster Management Plan' emphasizes a _____ approach.

a) Whole-of-Government

b) Single-agency

c) Isolated

d) Reactive

Answer: a

396. 'Drought monitoring' using satellite data helps in:

a) Causing droughts

b) Early warning and preparedness

c) Response only

d) Recovery only

Answer: b

397. The 'Chennai floods' of 2015 were exacerbated by:

a) Unplanned urbanization and loss of wetlands

b) An earthquake

c) A volcanic eruption

d) A cyclone

Answer: a

398. 'Landslide Hazard Zonation' maps are used for:

a) Promoting tourism in hilly areas

b) Identifying stable areas for development

c) Mining operations

d) Agricultural intensification

Answer: b

399. The 'National School Safety Programme' aims to make schools:

a) More expensive

b) Safer from disasters

c) Exclusive

d) Vulnerable

Answer: b

400. The ultimate goal of disaster management is to:

a) Eliminate all hazards

b) Build a disaster-resilient society

c) React only after disasters occur

d) Rely solely on international aid

Answer: b