Solution

CET25B13 BIODIVERSITY AND CONSERVATION

Class 12 - Biology

1.

(b) Fungi

Explanation: Fungi exhibit more species diversity. This is followed by algae, bryophytes, and then fens and allies.

2.

(d) Biosphere reserves only

Explanation: The biosphere reserve is generally a vast protected area of land patches divided into three different zone, core, buffer, and transition zone. A transition zone May contain a variety of agricultural activities, grazing, plantation, cultivation, and settlements and other uses and in which local communities, management agencies, scientists, non-governmental organizations, cultural groups, economic interests, and other stakeholders work together to manage and sustainably.

3.

(d) Tiger

Explanation: Tiger

4.

(b) Preparation of homozygous diploids.

Explanation: Preparation of homozygous diploids.

5.

(d) Mostly located in the polar regions

Explanation: Biodiversity hotspots are the regions with very high levels of species richness and a high degree of endemism (that is, species confined to that region and not found anywhere else). As most of the biodiversity is found in tropics, biodiversity hotspots are also located in tropics.

6.

(b) less variation

Explanation:

- Endemic species are plants and animals that exist only in one geographic region. Species can be endemic to large or small areas of the earth.
- Endemic species of an ecological region try to maintain the same genetic makeup. These species are well suited in a particular habitat and show very little variation in comparison to other species.

7. **(a)** Amazon rain forest

Explanation: The Amazon Rainforest, also known as Amazonia or Amazon Jungle, is one of the world's greatest natural resources and covers most of the Amazon Basin of South America.
Because its vegetation continuously recycles carbon dioxide into oxygen, it has been described as the "Lungs of our Planet". About 20% of earth's oxygen is produced by the Amazon rainforest.

8. **(a)** Tropics

Explanation: Tropical environments, unlike temperate ones, are less seasonal, relatively more constant and predictable. There is more solar energy available in the tropics, which contributes to higher productivity. Alpine plants are adapted to the harsh conditions of the alpine environment, which include low temperatures, dryness, ultraviolet radiation, wind, drought, poor nutritional soil, and a short growing season.

9. **(a)** IUCN

Explanation: IUCN

10.

(b) 1991

Explanation: 1991

11.

(b) Rio-de Janeiro

Explanation:

- United Nations Conference on Environment and Development (UNCED), byname Earth Summit, the conference held at Rio de Janeiro, Brazil (June 3–14, 1992), to reconcile worldwide economic development with protection of the environment.
- The Earth Summit was the largest gathering of world leaders in history, with 117 heads of state and representatives of 178 nations in all attending.
- By means of treaties and other documents signed at the conference, most of the world's nations nominally committed themselves to the pursuit of economic development in ways that would protect the Earth's environment and nonrenewable resources.

12.

(c) Steller's sea cow is an extinct animal.
Explanation: Steller's sea cow is an example of a recently extinct animal.

13.

(c) Animals on verge of extinction.
Explanation: Animals on verge of extinction.

14.

(d) (ii), (iii) and (iv) only
Explanation: (ii), (iii) and (iv) only

15.

(c) due to human activities.
Explanation: Habitat destruction is a major cause of biodiversity loss. Habitat loss caused by human activities like deforestation, overpopulation, pollution, and global warming.
Species that are physically large and those living in forests or oceans are more affected by habitat reduction.

16. **(a)** Western Ghats and Eastern Himalayas
Explanation: Western Ghats and Eastern Himalayas

17. **(a)** 34
Explanation: 34

18.

(b) IUCN
Explanation: IUCN

19. **(a)** move away from equator to poles
Explanation: move away from equator to poles

20.

(d) 1951
Explanation: 1951

21.

(c) Kyoto protocol - Climate change
Explanation: Kyoto protocol- Climate change

22.

(d) Kerala
Explanation: Kerala

23.

(b) No human activity is allowed.
Explanation: No human activity is allowed.

24.

(b) Homogenized population
Explanation: Gene flow or movement of genes leads to homogenized populations of a species in an ecosystem. Homogenized populations have all the species having almost the same genetic makeup.

25.

(b) Scavengers

Explanation: Scavenger feeds on dead animal and plant material present in the habitat. Cleanliness observed by human beings will adversely affect the habitat of the scavengers.

26.

(d) Red Panda
Explanation: Red Panda

27.

(d) Ecotone
Explanation: Ecotone

28. **(a)** 359 invertebrates
Explanation: 359 invertebrates

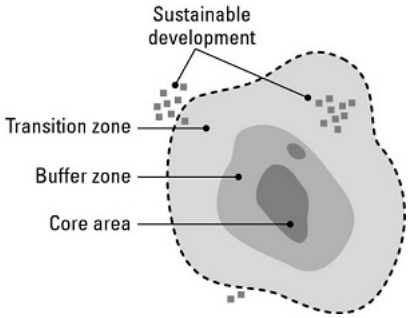
29.

(c) The desert areas of Rajasthan and Gujarat have a very high level of desert animal species as well as numerous rare animals.
Explanation: The desert areas of Rajasthan and Gujarat have a very high level of desert animal species as well as numerous rare animals.

30.

(c) Podophyllum
Explanation: Podophyllum

31. **(a)** Natural zone, buffer zone and transition zone.
Explanation: The three zones of biosphere reserves are natural zone, buffer zone, and transition zone. The natural zone is also known as core zone and transition zone is called as manipulation zone.



32.

(d) Over exploitation by humans
Explanation: Many species extinctions in the last 500 years (Steller's sea cow, passenger pigeon) were due to overexploitation by humans.

33.

(b) Aravalli Hills - Karnataka
Explanation: Aravalli Hills - north-western part of India

34.

(c) Western Ghats
Explanation: Western Ghats

35.

(b) Death of fish due to lack of oxygen.
Explanation: Death of fish due to lack of oxygen.

36.

(d) Dachigam National Park, Jammu and Kashmir
Explanation: Dachigam National Park, Jammu and Kashmir

37.

(b) Alexander van Humboldt
Explanation: Alexander Von Humboldt has observed that within a region, species richness gets increased when the explored area is increased, but only up to a limit.
The relationship between species richness and area for a number of taxa like angiosperms plants, freshwater fishes, and birds is found to be a rectangular hyperbola.

The equation is described by :
log S = log C + Z log A
S – Species Richness
Z – Slope of the line (regression coefficient)
A – Area
C – y-intercept

38. **(a)** Amphibian
Explanation: Amphibian faces maximum threat of extinction.

39. **(a)** Presently the population is sufficient but is undergoing depletion.
Explanation: A vulnerable species is one which has been categorized by the International Union for Conservation of Nature as likely to become endangered unless the circumstances threatening its survival and reproduction improve. The population of Vulnerable species is sufficient but is undergoing depletion due to some factors so that it is facing the risk of extinction in the medium-term in the future.

40. **(b)** 7
Explanation: 7

41. **(c)** Restoring extinct species of plants and animals
Explanation: Importance of Biosphere Reserve:

i. **Conservation:** Biosphere reserves conserve genetic resources, species, ecosystems, and landscapes without uprooting inhabitants.
ii. **Development:** Sustainable economic, cultural, social, and ecological developments are ensured.
iii. **Restoration**: Biosphere reserve helps to rebuild any damage caused to ecosystems and habitats.
iv. **Education and Research**: Biosphere reserve provides a lot of scientific information for specific scientific studies and research.

42. **(d)** Cynodon
Explanation: Carrot grass (Parthenium), Lantana, and water hyacinth (Eichhornia) caused environmental damage and posed a threat to our native species by invasive weed species.

43. **(c)** Critically endangered
Explanation: A critically endangered (CR) species is one which has been categorized by the International Union for Conservation of Nature (IUCN) as facing a very high risk of extinction in the wild. It's the highest risk category assigned by the IUCN Red List for wild species. In India, about 18 animals and 44 plant species are critically endangered.

44. **(d)** Mystus singhala
Explanation: Mystus singhala

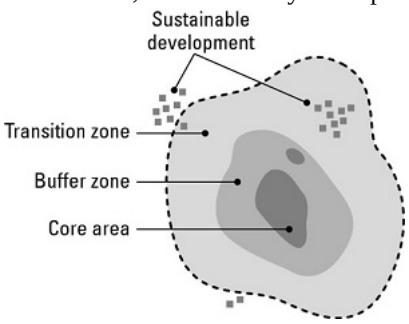
45. **(c)** Critically endangered
Explanation: A critically endangered (CR) species is one which has been categorized by the International Union for Conservation of Nature (IUCN) as facing a very high risk of extinction in the wild.
Criteria for critically endangered is an observed, estimated, inferred or suspected population size reduction of 90% over the last 10 years or three generations, whichever is the longer, where the causes of the reduction are clearly reversible AND understood AND ceased.
Critically endangered species should be protected to avoid extinction.

46. **(d)** Genetic diversity
Explanation: Genetic diversity

47.

(d) Core or natural zone

Explanation: There are three zones of any biosphere reserves core zone, buffer zone, and transition zone. In the core zone or natural zone, human activity is not permitted at all.



48.

(d) Phenology

Explanation: Phenology

49.

(c) Option (i)

Explanation: The largely tropical Amazonian rain forest in South America has the greatest biodiversity on earth- it is home to more than 40,000 species of plants, 3,000 of fishes, 1,300 of birds, 427 of mammals, 427 of amphibians, 378 of reptiles and of more than 1,25,000 invertebrates.

50.

(d) All are ex situ conservation methods

Explanation: All are ex-situ conservation methods and can be used to preserve biodiversity in the laboratory.

51. **(a)** Self perpetuating

Explanation: Self perpetuating

52. **(a)** Sacred groves

Explanation: Sacred groves of India are forest fragments of varying sizes, which are communally protected, and which usually have a significant religious connotation for the protecting community. Hunting and logging are usually strictly prohibited within these patches.

Rare endangered and endemic taxa can be found intact and flourishing in sacred groves.

53.

(d) Narmada

Explanation: Narmada

54.

(b) 1981

Explanation: 1981

55. **(a)** Jhum cultivation

Explanation: Jhum cultivation

56. **(a)** More than 15,500.

Explanation: Nearly 700 species have become extinct in recent times and more than 15,500 species (of which > 650 are from India) which includes amphibians, gymnosperms, reptiles, birds and mammals, etc. currently face the threat of extinction.

The causes of high extinction rates at present include habitat (particularly forests) loss and fragmentation, over-exploitation, biological invasions, and co-extinctions.

57.

(d) Rhinoceros unicornis

Explanation: Rhinoceros unicornis

58.

(b) Uttar Pradesh

Explanation: Uttar Pradesh

59.

(b) Manas National Park

Explanation: Located in the Himalayan foothills, it is contiguous with the Royal Manas National Park in Bhutan. The park is known for its rare and endangered endemic wildlife such as the Assam roofed turtle, hispid hare, golden langur, and pygmy hog. It is established in 1990.

60. **(a)** Amazonian rain forests

Explanation: The Amazon in South America is the largest, most diverse tropical rainforest on Earth, covering an area of five and a half million square kilometres.

The Amazon rainforest functions as a giant air machine that absorbs a large amount of carbon dioxide, and produces oxygen. That is why it is often called the "Lungs of the Earth.

61. **(a)** Zoological garden

Explanation: Zoological garden

62.

(d) Man and Biosphere programme

Explanation: Man and Biosphere programme

63.

(d) 1.7 - 1.8 million

Explanation: 1.7 - 1.8 million

64.

(c) Rauwolfia

Explanation: The genetic variation shown by the medicinal plant *Rauwolfia vomitoria* growing in different Himalayan ranges might be in terms of the potency and concentration of the active chemical (reserpine) that the plant produces.

65.

(d) Dominant species

Explanation: The species that predominates in an ecological community, particularly when they are most numerous or form the bulk of the biomass.

Diversity can be promoted by dominant species. Dominant species of an ecosystem determine the way of diversity which may be linear or diverse.

66.

(d) Represtation

Explanation: Represtation

67.

(d) Khecheopalari Lake of Sikkim.

Explanation: Sacred lake is a pool of water generally near religious places were catching fish and other aquatic animals are strictly prohibited. Khecheopalari Lake of Sikkim is a sacred lake in India among many.

68. **(a)** All the species are neither threatened nor indigenous species of India.

Explanation: African catfish (*Clarias gariepinus*), Lantana, and water hyacinth (Eichhornia) all are exotic species that are invasive weed species that came from other countries in India.

69. **(a)** Keolado National Park

Explanation: Keolado National Park

70.

(c) Polar bear

Explanation: The IUCN Red List of Threatened Species (also known as the IUCN Red List or Red Data List), founded in 1964, is the world's most comprehensive inventory of the global conservation status of biological species.

Vulnerable species are likely to become endangered unless something changes. Polar bear is likely to become endangered due to climate change. So, the polar bear is vulnerable species as per the 2008 red book list.

71.

(b) Impact of human interference and pollution on biotic and abiotic environments.

Explanation: UNESCO's Man and the Biosphere Programme (MAB) is an Intergovernmental Scientific Programme that was launched in 1971. It aims to establish a scientific basis for the improvement of relationships between people and their

environments. It has been launched to study the human environment, the impact of human interference and pollution on biotic and abiotic environments, and conservation strategies.

72. **(a)** Lesser interspecific competition

Explanation: Lesser interspecific competition is not generally seen in biodiversity hotspots.

73.

(d) Jaintia Hills in Meghalaya

Explanation: The hotspot area includes all the seven districts, i.e. East Garo Hills, West Garo Hills, South Garo Hills, East Khasi Hills, West Khasi Hills, Jaintia Hills and Ri-Bhoi

74.

(b) Keeping animals in zoological parks

Explanation: Keeping animals in zoological parks helps in the conservation of captured animals, it does not cause their extinction.

75.

(b) Coral reefs

Explanation: Coral reefs are believed by many to have the highest biodiversity of any ecosystem on the planet even more than a tropical rainforest. Occupying less than one percent of the ocean floor, coral reefs are home to more than twenty-five percent of marine life.