

# ESE-2018 PRELIMS TEST SERIES

Date: 30<sup>th</sup> September, 2017

## GS-TEST 1 (OBJECTIVE SOLUTION)...



### ANSWERS

1. (a)	21. (d)	41. (a)	61. (c)	81. (a)
2. (b)	22. (a)	42. (a)	62. (a)	82. (a)
3. (a)	23. (c)	43. (c)	63. (b)	83. (b)
4. (c)	24. (c)	44. (d)	64. (a)	84. (d)
5. (c)	25. (d)	45. (c)	65. (d)	85. (c)
6. (a)	26. (d)	46. (c)	66. (a)	86. (b)
7. (b)	27. (b)	47. (d)	67. (b)	87. (d)
8. (c)	28. (d)	48. (a)	68. (c)	88. (d)
9. (a)	29. (c)	49. (a)	69. (b)	89. (b)
10. (d)	30. (a)	50. (c)	70. (c)	90. (b)
11. (a)	31. (d)	51. (a)	71. (b)	91. (a)
12. (c)	32. (b)	52. (c)	72. (c)	92. (a)
13. (d)	33. (b)	53. (b)	73. (a)	93. (d)
14. (d)	34. (b)	54. (b)	74. (d)	94. (d)
15. (a)	35. (b)	55. (d)	75. (c)	95. (b)
16. (b)	36. (c)	56. (a)	76. (b)	96. (b)
17. (a)	37. (a)	57. (d)	77. (c)	97. (a)
18. (c)	38. (c)	58. (d)	78. (b)	98. (d)
19. (a)	39. (d)	59. (d)	79. (d)	99. (c)
20. (d)	40. (c)	60. (b)	80. (c)	100. (d)

## ESE-2018 PRELIMS TEST SERIES Solutions

Date: 30 September, 2017

1. (a)  
In order for a building to be considered ECBC-compliant, it will need to demonstrate minimum energy savings of 25%.
2. (b)  
Under this deal, only rich countries will contribute 100 billion dollars per year from 2020.
3. (a)
4. (c)  
The Manipur government has declared Dailong village of Tamenglong district as a biodiversity Heritage Site of the state.
5. (c)  
MoU Signed Between Indian Navy and Space Application Centre on Data Sharing and Scientific cooperation in the field of Meteorology and Oceanology.  
It includes, sharing of non-confidential observational data for pre-launch sensor calibration and post launch satellite data validation, carrying out calibration and validation for ocean models, transfer of technology to generate weather information, training on latest technology and sharing of subject matter experts between the organizations for effective knowledge transfer.
6. (a)  
The bulk of aerosols i.e. about 90% by mass have natural origins.
7. (b)  
Its main aim is to regulate the output of air pollutants from internal combustion engine equipment including all motor vehicles.
8. (c)  
Kharai camels are called as "Swimming Camels". Gujarat is the only State in India which is home to Kharai Camels and this camel is adapted to extreme climate of Kachchh and shallow seas and high salinity.
9. (a)  
Darwaza Band Campaign was launched by the Ministry of Drinking Water and Sanitation under Swachh Bharat Mission.
10. (d)  
Its aim is to promote toilet use and freedom from open defecation across the country's villages. It has been supported by the World Bank.
11. (d)  
Threats to Great Indian Bustard are:  
Habitat destruction  
Hunting  
Lack of awareness and support  
Lack of cooperation between different departments/stakeholders  
Livestock overgrazing and feral dogs  
Degradation and disturbance in existing grassland habitat
12. (a)  
Faster adoption and manufacturing of (hybrid) electric vehicles in India is administered by ministry of Heavy Industries and Public Enterprises.
13. (c)  
Kyoto Protocol was adopted in 1997 to fight global warming by reducing Greenhouse Gases emission and is linked to the United Nations Framework Convention on Climate Change (UNFCCC).  
The 2nd commitment period for the period 2013-2020 was adopted in 2012 by the Doha Amendment of the Kyoto Protocol.
14. (d)  
**Swachh Survekshan Gramin 2017**  
It has been started by the Ministry of Drinking Water and Sanitation to assess the present status of rural sanitation in all States and Union Territories.  
The main objectives are:  
To improve sanitation coverage and solid liquid waste management  
To push forward Swachh Bharat Mission in rural areas.
15. (d)  
**Important Bird and Biodiversity Areas**  
These are places of international significance for the conservation of birds and other biodiversity" and are distinct areas amenable to practical conservation action.

Declaring a site as an Important Bird and Biodiversity Area does not ensure that the site gets legal protection or becomes inaccessible to people.

BirdLife International encourages national and State governments to recognise the areas as sites of vital importance for conservation of wildlife and to empower local community-based conservation initiatives.

15. (a)

An invasive species is a non-native organism that causes ecological harm after being introduced to a new environment.

Once they enter a new ecosystem, they can outcompete native organisms for resources like food, especially if they lack natural predators.

Some invasive species also carry diseases that kill native organisms and many will consume native plants and animals. Invasive species can ultimately cause the decline or extinction of native species, decreasing biodiversity in an ecosystem.

Humans are responsible for the spread of a majority of earth's invasive species, often carrying them to different parts of the world on ships.

Invasive species are not necessarily predating.

16. (b)

HFC-23 is a by-product of HFC-22, which is used in refrigeration and air conditioning. This variant of hydrofluorocarbon (HFC) has a global warming potential 14,800 times more than that of carbon dioxide.

The Kyoto Protocol's clean development mechanism (CDM) has led to the destruction of large volumes of the very potent greenhouse gas HFC-23.

Emissions of all HFCs are included in the UNFCCC's Kyoto Protocol.

17. (a)

Cryopreservation or cryo-conservation is a process where cells, whole tissues, or any other substances susceptible to damage caused by chemical reactivity or time are preserved by cooling to sub-zero temperatures.

At low enough temperatures, any enzymatic or chemical activity which might cause damage to the material in question is effectively stopped.

Cryopreservation methods seek to reach low temperatures without causing additional damage caused by the formation of ice during freezing.

18. (c)

Organic farming enhances profit as the cost of inputs is reduced due to most efficient use of resources. And as the cost of production is reduced, it is a means of women empowerment and poverty alleviation.

However, the major reason that is hampering the large scale adoption of organic farming is that it reduces crop yields in short term.

19. (a)

The greenhouse effect is the process by which absorption and emission of infrared radiation by gases in a planet's atmosphere warm its lower atmosphere and surface.

The major greenhouse gases are water vapor, which causes about 36–70% of the greenhouse effect; carbon dioxide (CO<sub>2</sub>), which causes 9–26%; methane (CH<sub>4</sub>), which causes 4–9%; and ozone (O<sub>3</sub>), which causes 3–7%.

20. (d)

Carbon sequestration is the process involved in carbon capture and the long-term storage of atmospheric carbon dioxide. Carbon dioxide is naturally captured from the atmosphere through biological, chemical, or physical processes.

Some important methods of Carbon sequestration

Peat production

Reforestation

Wetland restoration

Mineral carbonation

Ocean storage

Subterranean injection

Chemical scrubbers

21. (d)

Microbeads

Microbeads are tiny plastic substances measuring less than five millimeters that act as exfoliators (agents which remove dead cells) on skin and teeth when used in soap, toothpaste and other products.

Due to their very small size Microbeads cannot be trapped by the water filtration systems. These microbeads escape filtration and treatment.

Jobba beads, salts are some of the biodegradable alternatives to plastic microbeads.

22. (a)

Carbon Monoxide is an unstable gas and doesn't last long to heat.

Soot consists largely of amorphous carbon, produced by the incomplete burning of organic matter.

23. (c)

First statement is not correct because more than six categories are included in IUCN Red List.

The plants, fungi and animals assessed for The IUCN Red List are the bearers of genetic diversity and the building blocks of ecosystems.

The main purpose is to catalogue and highlight those plants and animals that are facing a higher risk of global extinction (i.e. those listed as Critically Endangered, Endangered and Vulnerable).

It also includes information on plants, fungi and animals that are categorized as Extinct or Extinct in the Wild; on taxa that cannot be evaluated because of insufficient information (i.e., are Data Deficient); and on plants, fungi and animals that are either close to meeting the threatened thresholds or that would be threatened were it not for an ongoing taxon-specific conservation programme (i.e., are Near Threatened).

Plants, fungi and animals that have been evaluated to have a low risk of extinction are classified as Least Concern.

24. (c)

25. (d)

Occurrence of classical smog- Cool Humid climate.

It is a mixture of smoke, fog and SO<sub>2</sub>.

It is reducing mixture so called as Reducing Smog.

26. (d)

Aichi Targets

Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use

Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services

Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building.

Timeframe:

Short term plan: by 2020

Long term plan: by 2050

27. (b)

The Central Pollution Control Board (CPCB), statutory organisation, was constituted in September, 1974 under the Water (Prevention and Control of Pollution) Act, 1974. Further, CPCB was entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981.

The lists of environmental standards administered by CPCB are:

National air quality standards

Water quality standards

Vehicular exhaust

Industrial specific standards

Bio Medical incinerators

Noise standards

Generator sets

SAFAR – System of Air Quality and Weather Forecasting and Research- envisages a research based management system where strategies of

air pollution mitigation go hand in hand with nation's economic development. It is for greater metropolitan cities of India to provide location specific information on air quality in near real time. It is operated by Indian Institute of Tropical Meteorology, Pune.

28. (d)

Endemism is the ecological state of a species being unique to a defined geographic location, such as an island, nation, country or other defined zone, or habitat type; organisms that are indigenous to a place are not endemic to it if they are also found elsewhere.

29. (c)

The Global Environment Facility (GEF) was established on the eve of the 1992 Rio Earth Summit, to help tackle our planet's most pressing environmental problems. Since then, the GEF has provided \$14.5 billion in grants and mobilized \$75.4 billion in additional financing for almost 4,000 projects.

30. (a)

The "21" in Agenda 21 refers to the **21st Century**. Agenda 21 document has been grouped into 4 sections:

**Section I:** Social and Economic Dimensions is directed toward combating poverty, especially in developing countries, changing consumption patterns, promoting health, achieving a more sustainable population, and sustainable settlement in decision making.

**Section II:** Conservation and Management of Resources for Development Includes atmospheric protection, combating deforestation, protecting fragile environments, conservation of biological diversity (biodiversity), control of pollution and the management of biotechnology, and radioactive wastes.

**Section III:** Strengthening the Role of Major Groups includes the roles of children and youth, women, NGOs, local authorities, business and industry, and workers; and strengthening the role of indigenous peoples, their communities, and farmers.

**Section IV:** Means of Implementation: implementation includes science, technology transfer, education, international institutions and financial mechanisms.

31. (d)

32. (b)

33. (b)

#### Major air pollutants and their effects

PM10 (particles less than 10 micrometers in diameter) and PM 2.5 (particles less than 2.5 micrometers in diameter)

Combustion processes and natural sources such as dust, diesel and smoke. Small particles can penetrate deep into the lungs and cannot be expelled. They may cause irritation and/or carry with them toxic or carcinogenic substances.

#### Cadmium:

It is released from mining and metallurgy, cigarette smoke and incineration of plastics. It causes cardiovascular diseases in human-kidney damage and "Itai-itai" or ouch-ouch disease.

#### Benzene:

It is released from motor vehicle exhausts and petrol evaporation and is a human carcinogen.

34. (b)

#### Photochemical Smog

Photochemical smog occurs most prominently in urban areas that have large number of automobiles and does not require any smoke or fog. The word smog is misnomer here.

Photochemical smog is the chemical reaction of sunlight, nitrogen oxides and volatile organic compounds in the atmosphere, which leaves airborne particles and ground-level ozone. This noxious mixture of air pollutants may include the following:

- Aldehydes
- Nitrogen oxides, particularly nitric oxide and nitrogen dioxide
- Per-oxyacyl nitrates
- Tropospheric ozone
- Volatile organic compounds

It is formed in the month of summer during afternoon when there is bright sunlight so that photochemical reactions can take place.

35. (b)

**The clauses under the convention:**

Controlling and reducing releases of mercury and mercury compounds

Storage and disposal of mercury waste should be done in environmentally sound manner.

It proposes prohibition of use of mercury in products include batteries, compact fluorescent lamps, switches and relays, soaps and cosmetics, thermometers, and blood pressure devices by 2020.

Dental filling using mercury amalgams are to be phased down gradually.

Prohibits parties to allow mercury mining that was not being conducted prior to country's entrance in the treaty

Deals with treatment of contaminated sites

Importance of public information in terms of education and health guidelines

Cooperation between nations and exchange of information

36. (c)

Annex I Parties include the industrialized countries that were members of the OECD (Organization for Economic Co-operation and Development) in 1992, plus countries with economies in transition (the EIT Parties), including the Russian Federation, the Baltic States, and several Central and Eastern European States.

Annex II Parties consist of the OECD members of Annex I, but not the EIT Parties. They are required to provide financial resources to enable developing countries to undertake emissions reduction activities under the Convention.

Non-Annex I Parties are mostly developing countries.

37. (a)

A wetland is a place where the land is covered by water, either salt, fresh or somewhere in between.

Wetland soil is an important carbon sink; 14.5% of the world's soil carbon is found in wetlands, while only 6% of the world's land is composed of wetlands

Wetlands remove excessive nutrients from water and allow the particulate matter to settle down which can be then used by plants. It has been proved that 90% of phosphorus can be removed from passing water through wetland.

The most significant social and economic benefit that wetlands provide is flood control. Peatlands and wet grasslands alongside river basins can act like sponges, absorbing rainfall and controlling its flow into streams and rivers.

Although paddy fields were originally wetlands and artificially constructed devices for rice production, they have worked as a nursery of biodiversity and cultural diversity.

38. (c)

India is home to nearly 70% of the world's tiger population and according to the 2014 tiger census, there are 2,226 tigers in the country. State-wise, Karnataka has the highest number of tigers (406) followed by Uttarakhand (340), Madhya Pradesh (308), Tamil Nadu (229), Maharashtra (190), Assam (167), Kerala (136) and Uttar Pradesh (117).

39. (d)

Methods by which ISA will bring down the costs of technology as well as of finance needed for a solar project:

It will boost global demand, which will result in further reduction in the prices of solar energy deployment.

It will promote standardisation in the use of equipment and processes for generating electricity. This step will make the manufacturing of equipment and other hardware cheaper.

It will boost research and development, particularly in areas of efficient storage systems.

40. (c)

41. (a)

42. (a)

Hornbills are prominent birds of Asian tropical forests and Arunachal is home to five hornbill species. But their killing by locals for meat and habitat loss because of shifting cultivation had threatened their existence deep inside forests.

Many tribals were not aware that due to their predominantly frugivorous diet, the brightly coloured birds with loud calls have always been considered important agents of seed dispersal in the tropical forest.

43. (c)

44. (d)

**Measures are:**

1. Sprinkling water using helicopters,
2. Stopping construction activity,
3. Cleaning of dust from roads by mechanical means. Manual cleaning only helps in regeneration of pollution.
4. Stopping stone crushing and
5. Stopping thermal power plants & diesel generator sets that cause more pollution than is permitted.

45. (c)

46. (c)

**Fly ash:**

Fly ash is a byproduct from burning pulverized coal in electric power generating plants.

All fly ash includes substantial amounts of silicon dioxide, aluminum oxide and calcium oxide.

Fly ash contains trace of heavy metals and other substances that are known to be detrimental to health in sufficient quantities.

It also causes groundwater pollution and used to make bricks, blocks, tiles, wall panels, cement and other construction materials.

47. (d)

Delhi Declaration on Agro-biodiversity Management

The first International Agro-biodiversity Congress held in New Delhi in November 2016.

It states that nations must accord top priority to the agro-biodiversity conservation and their

sustainable use towards achieving targets of SDGs.

It recognizes importance of traditional knowledge on agro-biodiversity of farmers, pastoralists and other tribal and rural communities and their role in its conservation.

It emphasizes the necessity of global exchange of plant, animal, aquatic microbial and insect genetic resources for food and agriculture to meet the growing food and nutritional needs.

It suggests developing an agro-biodiversity index to help monitor conservation and use of agro-biodiversity.

It urges public and private sector partnerships to actively invest in and incentivize the utilization of agrobiodiversity to address malnutrition and enhance ecosystem services.

48. (a)

The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity is a 2010 supplementary agreement to the 1992 Convention on Biological Diversity.

It prohibits the collection of plant materials by a foreign country without an agreement with host countries on the sharing of benefits arising from such resources.

The Wildlife Protection Act, 1972 is applicable for the protection of some plant species

49. (a)

The Green India Mission is part of the Centre's plan to fight climate change by increasing the forest cover by 10 million hectares in the next 10 years. It is one of the eight missions under the National Action Plan on Climate Change.

50. (c)

**Types of diversities:**

1. Alpha-diversity (Within-Community diversity) refers to the diverse organisms sharing the same community/habitat.
2. Beta-diversity (Between-community diversity) refers to the rate of replacement of species

along a gradient of habitats or communities.

3. Gamma diversity (Overall) refers to the diversity of habitats over the total landscape or geographical area.

51. (a)

**National Mission on Enhanced Energy Efficiency (NMEEE)** is an Indian government initiative proposed to address national problems of inefficient energy use.

It is one of eight proposals created by India's National Action Plan for Climate Change and is based on the Energy Conservation Act of 2001. The Mission will enable about Rs. 75,000 crore worth transactions in energy efficiency.

**The initiative outlines several actions needed, including:**

- (a) Perform, achieve and trade
- (b) Market transformation for energy efficiency
- (c) Financing of energy efficiency
- (d) Power sector technology strategy
- (e) Strengthening of state designated agencies
- (f) Strengthening of Bureau of Energy Efficiency
- (g) Awareness programs

52. (c)

A bio-fertilizer (also bio-fertilizer) is a substance which contains living microorganisms which, when applied to seed, plant surfaces, or soil, colonizes the rhizosphere or the interior of the plant and promotes growth by increasing the supply or availability of primary nutrients to the host plant.

Bio-fertilizers add nutrients through the natural processes of nitrogen fixation, solubilizing phosphorus, and stimulating plant growth through the synthesis of growth-promoting substances.

The microorganisms in bio-fertilizers restore the soil's natural nutrient cycle and build soil organic matter.

Therefore, they are extremely advantageous in enriching soil fertility and fulfilling plant nutrient requirements and do not contain any chemicals which are harmful to the living soil.

Bio-fertilizers provide eco-friendly organic agro-input and are more cost-effective than chemical fertilizers.

Bio-fertilizers such as Rhizobium, Azotobacter, Azospirillum and blue green algae (BGA) have been in use a long time.

53. (b)

Blue carbon is the carbon captured by the world's oceans and coastal ecosystems. The carbon captured by living organisms in oceans is stored in the form of biomass and sediments from mangroves, salt marshes and sea grasses.

The rates of blue carbon sequestration and storage capacities in ecosystems are comparable to (and often higher than) those in carbon-rich terrestrial ecosystems such as tropical rainforests or peatlands.

54. (b)

55. (d)

56. (a)

Ozone is a secondary pollutant; it is formed due to the reaction of emissions from coal power plants such as nitrogen oxides and volatile organic compounds with atmospheric Oxygen, in the presence of sunlight.

Harmful pollutants emitted from a typical, uncontrolled coal plants include: Sulphur Dioxide, Nitrogen Oxides, PM (soot or fly ash), Mercury, VOCs, Lead, Cadmium, toxic heavy metals, Arsenic, Carbon Monoxide and trace amounts of uranium.

57. (d)

The BRS Conventions refer to the Basel, Rotterdam and Stockholm Conventions. All three deal with hazardous materials/chemicals/wastes. These are related also with protecting humans and the environment and consequently biodiversity, but the conventions as such are specifically related to the control/banning of the use/movement of hazardous wastes and chemicals.

58. (d)

The inclusion of chemicals under Rotterdam Convention does not ban the chemical. However, importing countries need to follow the Prior

Informed Consent procedure. Listing of hazardous chemicals may lead to an increase in the trade cost, as well as delay the import/export process.

The Convention deals with pesticides and industrial chemicals that have been banned or severely restricted by the parties because of environmental or human health concerns.

Listing of chemicals under Stockholm convention bans/restricts the chemicals for trade, import, export and use along with minimizing unintentional release of POPs.

59. (d)

**Effects of Environmental Degradation**

1. Impact on Human Health
2. Loss of Biodiversity
3. Ozone Layer Depletion
4. Loss for Tourism Industry
5. Economic Impact on GDP

60. (b)

**Methods to conserve Forest Resources**

Regulated and Planned Cutting of Trees (Afforestation)

Control over Forest Fire

Check over Forest Clearance for Agricultural and Habitation Purposes

Proper Utilization of Forest and Forests Products (No or minimum wastage)

Government laws and acts

61. (c)

62. (a)

When gas molecules are trapped in a lattice of water molecules at temperatures above 0°C and pressures above one atmosphere, they can form a stable solid. These solids are gas hydrates.

Most gas hydrates are formed from methane (CH<sub>4</sub>). Methane is the simplest hydrocarbon, and is the primary component of the natural gas that we burn for energy.

Gas hydrate deposits along ocean margins are estimated to exceed known petroleum reserves by about a factor of three. These hydrate beds

leak gases into the water, forming cold seeps on the ocean floor. This hydrocarbon seepage is common on continental margins around the world.

Hydrates influence ocean carbon cycling, global climate change, and coastal sediment stability. Localized meltdowns have caused massive continental slope failure, which can present a geological hazard for shelf oil and gas production.

Massive hydrate dissolution events, releasing vast amounts of the greenhouse gas methane, are possible causes of some of the abrupt climate changes seen in the geologic record.

63. (b)

A biodiversity hotspot is a biogeographic region with significant levels of biodiversity that is under threat from humans.

**To qualify as a biodiversity hotspot, a region must meet two strict criteria:** It must contain at least 0.5% or 1,500 species of vascular plants as endemics, and it has to have lost at least 70% of its primary vegetation.

Endemic species are species which are unique to a defined geographic location.

64. (a)

A biomarker, or biological marker, generally refers to a measurable indicator of some biological state or condition. The term is also occasionally used to refer to a substance the presence of which indicates the existence of a living organism.

Further, life forms are known to shed unique chemicals, including DNA, into the environment as evidence of their presence in a particular location.

65. (d)

Delhi Metro has become the only completely 'green' Metro system in the world for adhering to green building norms for its residential colonies from the Indian Green Building Council (IGBC).

66. (a)

67. (b)

Species diversity can be measured in terms of:  
(a) Species richness – refers to the number of various species in a defined area.

- (b) Species abundance – refers to the relative numbers among species. For example, the number of species of plants, animals and microorganisms may be more in an area than that recorded in another area.
- (c) Taxonomic or phylogenetic diversity – refers to the genetic relationships between different groups of species.
68. (c)  
 Negative environmental effect of eutrophication includes anoxia or loss of oxygen in the water with severe reductions in fish and other animal population.
69. (b)
70. (c)  
 REDD+ is a mechanism developed by Parties to the United Nations Framework Convention on Climate Change (UNFCCC).  
 It creates a financial value for the carbon stored in forests by offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development.  
 Wood is renewable energy source.
71. (b)  
 There are 18 Biosphere Reserves in India. They protect larger areas of natural habitat (than a National Park or Animal Sanctuary), and often include one or more National Parks and/or preserves, along buffer zones that are open to some economic uses. Protection is granted not only to the flora and fauna of the protected region, but also to the human communities who inhabit these regions, and their ways of life.  
 Animals are protected and saved here. Nine of the eighteen biosphere reserves are a part of the World Network of Biosphere Reserves, based on the UNESCO Man and the Biosphere (MAB) Programme list. The Nilgiri Biosphere Reserve was the first biosphere reserve in India established in the year 1986. It is located in the Western Ghats and includes 2 of the 10 bio geographical provinces of India.
72. (c)  
 The National Biodiversity Authority (NBA) is a statutory autonomous body under the Ministry of Environment and Forests, Government of India established in 2003 to implement the provisions under the National Biological Diversity Act, 2002, after India signed Convention on Biological Diversity (CBD) in 1992.  
 It acts as a facilitating, regulating and advisory body to the Government of India “on issues of conservation, sustainable use of biological resources and fair and equitable sharing of benefits arising out of the use of biological resources.”  
 Additionally, it advises State Governments in identifying the areas of biodiversity importance (biodiversity hotspots) as heritage sites.
73. (a)
74. (d)
75. (c)  
 Lowered resistance to environmental perturbations such as drought and increased variability in certain ecosystem processes such as plant productivity, water use, and pest and disease cycles.
76. (b)  
 Greater the BOD more is the polluting potential. Actually, in secondary treatment or biological treatment of sewage water in plant, the primary effluent is passed into large aeration tanks where it is constantly agitated mechanically and air is pumped into it. This allows vigorous growth of useful aerobic microbes into flocs (masses of bacteria associated with fungal filaments to form mesh like structures).  
 While growing, these microbes consume the major part of the organic matter in the effluent. This significantly reduces the BOD (biochemical oxygen demand) of the effluent. BOD refers to the amount of the oxygen that would be consumed if all the organic matter in one litre of water were oxidized by bacteria. The sewage water is treated till the BOD is reduced.
77. (c)  
 The most favoured habitat of a plant is called 'Microhabitat' and not the 'Ecotype'.

**78. (b)**

The data only considers carbon dioxide emissions from the burning of fossil fuels and cement manufacture, but not emissions from land use such as deforestation. In the list given below, the countries have been ranked by their metric tons of carbon dioxide emissions per capita.

**79. (d)****80. (c)**

Below carrying capacity, populations typically increase, while above, they typically decrease. A factor that keeps population size at equilibrium is known as a regulating factor. Population size decreases above carrying capacity due to a range of factors depending on the species concerned, but can include insufficient space, food supply, or sunlight. The carrying capacity of an environment may vary for different species and may change over time due to a variety of factors, including: food availability, water supply, environmental conditions and living space.

**81. (a)****82. (a)**

They are not biological agents and are poisonous products of organisms. Unlike biological agents, they are inanimate and not capable of reproducing

themselves. It is produced within living cells or organisms. Synthetic toxicants are excluded because they are created by artificial processes.

**83. (b)****84. (d)****85. (c)****86. (b)****87. (d)****88. (d)****89. (b)****90. (b)****91. (a)****92. (a)****93. (d)****94. (d)****95. (b)****96. (b)****97. (a)****98. (d)****99. (c)****100. (d)**Website : [www.iesmaster.org](http://www.iesmaster.org) E-mail: [info@iesmaster.org](mailto:info@iesmaster.org)

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