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ESE- 2018 (Prelims) - Offline Test Series

Test-8

GENERAL STUDIES

**SUBJECT: BASICS OF ENERGY AND ENVIRONMENT
SOLUTIONS**

01. Ans: (d)

Sol: The key factors that determine the GWP value of a GHG:

-) where along the electromagnetic spectrum (i.e., what wavelengths) the gas absorbs radiation, and
-) the atmospheric lifetime of the gas
-) conc. of a gas

02. Ans: (b)

Sol: When water is too warm, corals will expel the algae (zooxanthellae) living in their tissues causing the coral to turn completely white. This is called coral bleaching.

03. Ans: (c)

04. Ans: (c)

Sol: Diversity may be measured at different scales. These are three indices used by ecologists:

-) Alpha diversity refers to diversity within a particular area, community or ecosystem, and is measured by counting the number of taxa within the ecosystem (usually species)
-) Beta diversity is species diversity between ecosystems; this involves comparing the number of taxa that are unique to each of the ecosystems.

-) Gamma diversity is a measurement of the overall diversity for different ecosystems within a region.

05. Ans: (d)

Sol: Ultra Mega Power Projects (UMPP) are a series of ambitious coal based power stations planned by the Government of India. This would entail the creation of an additional capacity of at least 100,000 MW by 2022.

-) Ultra Mega Power projects, each with a capacity of 4000 MW or above, are being developed with the aim of bridging this gap.
-) Sixteen UMPPs have been identified in various parts of the Country. Out of these, two UMPPs are identified for being located in Tamil Nadu. So far, four UMPPs have been awarded to the developer(s) selected through International Tariff based competitive bidding process.
-) Mundra UMPP is fully commissioned and generating electricity.

06. Ans: (b)

Pre GATE-2018

COMPUTER BASED TEST

Date of Exam : 20th Jan 2018

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07. Ans: (a)

Sol: Some of the Benefits of Wetlands:

- Life support systems.
- Due to its extensive biological diversity and food chain in wetlands make them 'biological supermarkets'.
- As 'kidneys of landscape', wetlands receive flows of water and waste from upstream sources. They help stabilize water supplies, cleanse polluted waters, protect shorelines and recharge groundwater aquifers.
- Wetlands are our natural buffers against increasing risk of floods, droughts and tropical cyclones. Wetlands can act as sponges, storing peak rainfall and releasing water gradually during lean season.

08. Ans: (c)

Sol:

-) The summit was organised by The Energy and Resources Institute (TERI) with the theme Beyond 2015: People, Planet and Progress
-) WSDS has replaced TERI's earlier called Delhi Sustainable Development Summit (DSDS).
-) The first DSDS was organised in 2005.
-) It underscored need for businesses and private sector to take lead in poverty reduction and to ensure rapid and sustained adoption of Sustainable Development Goals (SDGs).
-) The aim of the summit is to provide various stakeholders a single platform in order to provide long-term solutions for the benefit of the global community.

09. Ans: (d)

10. Ans: (d)



11. Ans: (b)

Sol: N The National Tiger Conservation Authority was established in December 2005 following recommendations of the Tiger Task Force.
J National Tiger Conservation Authority administers Project Tiger.
J No State Government shall de-notify a tiger reserve, except in public interest with the approval of the NTCA and the approval of the National Board for Wild Life.

12. Ans: (c)

Sol: They are a subset of air pollution that contains gases, fumes and dust in harmful proportion. These particles can be both solid and liquid which also affects environmental visibility. They are suspended particulates in the atmosphere and have implications for climate and health through different mechanisms. Several studies have suggested that aerosols may be mitigating global warming by increasing the planetary albedo.

13. Ans: (d)

Sol: Objectives of CBD:
J Conservation of biological diversity
J Sustainable use of components of biological diversity.
J Fair and equitable sharing of the benefits arising out of the use of genetic resources.

14. Ans: (c)

Sol: Habitat fragmentation leads to reduction but not increase in species diversity.

15. Ans: (b)

16. Ans: (a)

Sol: The chain of transformation and transfer of food energy in the ecosystem from one group of organism to another group through a series of steps or levels is called food

chain. Food chain illustrates energy flow and not the numbers of each organism.

17. Ans: (c)

18. Ans: (d)

19. Ans: (b)

20. Ans: (c)

21. Ans: (a)

Sol: Keystone species the addition to or loss of keystone species from an ecosystem leads to major changes in abundance or occurrence of atleast one other species. Keystone species is very important because this determines the presence of many other species in that ecosystem.

22. Ans: (d)

23. Ans: (a)

Sol: Earth Hour is a worldwide movement organized by the World Wide Fund for Nature.

24. Ans: (d)

Sol:
J At CSIR-NEERI (National Environmental Engineering Research Institute), NEERDHUR, a multi fuel improved cookstove has been developed with high overall thermal efficiency, reduced fuel consumption and reduced emissions through design improvements and technological innovations.
J Its USP is that besides wood it can consume several fuels including coal, cow dung, charcoal, biomass and other agricultural residue. Designed as a hybrid with technology innovations, it uses much less fuel with lower emissions.



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25. Ans: (a)

Sol: A wetland is a land area that is saturated with water, either permanently or seasonally, such that it takes on the characteristics of a distinct ecosystem.[2] The primary factor that distinguishes wetlands from other land forms or water bodies is the characteristic vegetation of aquatic plants, adapted to the unique hydric soil.

) Wetlands play a number of roles in the environment, principally water purification, flood control, carbon sink and shoreline stability. Wetlands are also considered the most biologically diverse of all ecosystems, serving as home to a wide range of plant and animal life.

26. Ans: (c)

27. Ans: (a)

28. Ans: (c)

29. Ans: (b)

Sol: The purpose of Wood For Good campaign is to promote wood as climate-friendly resource and substitute to materials like steel and plastic as it is carbon neutral unlike other materials which leave carbon footprint in their production.

30. Ans: (b)

Sol: Light pollution is artificial brightening of the night sky caused by man-made lightening sources, which has a disruptive effect on natural cycles and inhibits the observation of stars and planets. It is also known as photo pollution or luminous pollution and basically is the misdirected or obtrusive of natural light by excessive artificial light. It was recently highlighted by WWF.

GATE - 2018

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31. Ans: (a)

Sol: It is the lightest element and most abundant element in earth crust.

It has high calorific value than other fuels.

They are environment friendly fuel cells because combustion of hydrogen in presence of oxygen results in formation of water.

Fuel cells can't be recharged it can be refilled (where as batteries are recharged).

32. Ans: (a)

33. Ans: (c)

34. Ans: (a)

Sol: Second-generation biofuels, also known as advanced biofuels, are fuels that can be manufactured from various types of biomass. Biomass is a wide-ranging term meaning any source of organic carbon that is renewed rapidly as part of the carbon cycle. Biomass is derived from plant materials but can also include animal materials.

35. Ans: (b)

Sol: A carbon credit is a generic term for any tradable certificate or permit representing the right to emit one tonne of carbon dioxide or the mass of another greenhouse gas with a carbon dioxide equivalent (tCO₂e) equivalent to one tonne of carbon dioxide.

36. Ans: (c)

Sol: In lower latitudes, biodiversity is normally greater due to abundant sunlight and rainfall.

37. Ans: (d)

38. Ans: (c)

39. Ans: (d)

Sol: The IGEN-GEC programme was launched in 2013 by the Germany's Federal Ministry for Economic Cooperation and Development (BMZ) and jointly implemented by India's MNRE and GIZ. The main objective of this programme is to improve the sector framework and conditions for grid integration of renewable energies with



conventional power grids. This programme aims to support the implementation of India's Renewable Energy Management Centre (REMCs), Green Energy Corridors scheme which are prerequisite for large scale grid integration of renewable energy to achieve the 175 GW target for renewable energy generation capacity by 2022.

40. Ans: (b)

Sol: Sick building syndrome – it is due to increase of indoor air pollution
Emphysema – is seen in people who are having smoking habit
Particulate matter – causes heart diseases
Bronchitis caused due to increase of Sulphur dioxide (smog and acid rains)

41. Ans: (c)

42. Ans: (a)

43. Ans: (a)

Sol: Ultra Mega Power Plants are low pollutants emissions.

UMPPS: 4000 MW power plants

Tech used: Super Critical at ultra super critical

Advantages:

1. low fuel- more energy
2. efficient combustion of coal
3. cost of electricity production is very less

44. Ans: (c)

45. Ans: (c)

46. Ans: (a)

Sol:

Volatile organic compounds, sometimes referred to as VOCs, are organic compounds that easily become vapors or gases. Along with carbon, they contain elements such as hydrogen, oxygen, fluorine, chlorine, bromine, sulphur or nitrogen.

47. Ans: (d)

48. Ans: (b)

Sol: Organic farming rely on crop rotation, avoids use of synthetic fertilizers, pesticides thus reducing the emission of green house gases.

49. Ans: (a)

50. Ans: (a)

Sol: Forest are source for biomass | such as dried leaves, wood, and timber
Wood | carbon neutral source

GATE TOPPERS

GATE 2017

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ESE 2017

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7 IN TOP 10 RANKS	10 E&T UMESH	7 IN TOP 10 RANKS	5 IN TOP 10 RANKS
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