



ACE

Engineering Academy

TEST ID: 602

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ESE- 2019 (Prelims) - Offline Test Series

Test- 4

GENERAL STUDIES AND ENGINEERING APTITUDE

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

01. Ans: (a)

Sol: Soil erosion can be checked by adopting the following measures.

Biological Methods:

- Strip cropping
- Crop rotation
- Shelter belts
- Vegetation cover
- Application of manure

02. Ans: (d)

Sol: 1. Increase in soil pollution level results in desertification, which in turn leading to loss of biological activity.

2. Increased dumping of solid waste into the oceans results in increase of pollution levels in marine ecosystem food chain.
3. As the plant cover increases, plants have a capacity to absorb pollutants from the soil.

03. Ans: (b)

04. Ans: (c)

Sol: It is organic material in the soil. It is not a form of soil, rather it is the broken down composted remains of leaves, grass and other organic matter contained within the soil. Humus is highly nutritious and rich in minerals and microbes.

05. Ans: (a)

Sol: Among the given options Andaman and Nicobar has the highest number of National Parks (9). However, Madhya Pradesh has the highest number of National Parks (10) in India.



Andaman and Nicobar (9):

Name of the NP	Established Year
1. Cambell Bay NP	1992
2. Galathea Bay NP	1992
3. Mahatma Gandhi Marine NP	1983
4. Middle Button Island NP	1987
5. Mount Harriett NP	1987
6. North Button Island NP	1987
7. Rani Jhansi Marine NP	1996
8. Saddle Peak NP	1987
9. South Button NP	1987

Arunachal Pradesh (2):

1. Mouling NP	1986
2. Nampada NP	1983

Assam (5):

1. Dibru-Saikhowa NP	1999
2. Kaziranga NP	1974
3. Manas NP	1990
4. Nameri NP	1998
5. Rajiv Gandhi Orang NP	1999

Meghalaya (2):

1. Balphakram NP	1985
2. Nokrek Ridge NP	1986

06. Ans: (b) 07. Ans: (c)

08. Ans: (b)

Sol: Hemis National Park (or Hemis High Altitude National Park) is a high altitude

national park in the eastern Ladakh region of the state of Jammu and Kashmir in India. Globally famous for its snow leopards, it is believed to have the highest density of them in any protected area in the world.



09. Ans: (a)

Sol: Biosphere Reserves include in the list of world network of Biosphere Reserves are Nilgiri, Gulf of Mannar, Sunderbans, Nandadevi, Nokrek Pachmari, Simlipal, Great-Nicobar, Achanakmar, Amarkantaks, Agasthyamalai.

10. Ans: (a)

Sol: PARIVESH means Responsive Facilitation by interactive, virtuous and environmental single-window hub.
It is related to the environmental clearance.

11. Ans: (d)

Sol: Pet coke or petroleum coke is a solid carbon rich (90% carbon) material derived from oil refining.
It is a source of fine dust which can get lodged in the lungs.
India is the world's largest consumer of pet coke.
India has become a dumping ground of pet coke from the US which has banned internal use because of pollution.

12. Ans: (c)

13. Ans: (a)

14. Ans: (d)

Sol: Methanol is popularly known as 'Wood Alcohol', it is single carbon compound made from wood, biomass, coal, natural gas.

- It is blended into LPG cylinder in the form of Dimethyl Ether (DME).
- It is the best alternative to fossil fuel and a bed rock for energy security.
- Blending of ethanol into LPG cylinder will reduce subsidy upto 30%.

15. Ans: (a)

Sol: Mobile apps related to energy efficient and reliable services is Saubhagya app, Surya Mithra app, Atal app, Vidyut Pravah, UDAY app.

16. Ans: (b)

Sol: Government of India has notified FAME India Scheme [Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India] for implementation with effect from 1st April 2015, with the objective to support hybrid/electric vehicles market development and Manufacturing eco-system.

17. Ans: (d)

18. Ans: (b)



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19. Ans: (a)

20. Ans: (b)

Sol: Co-generation or combined heat and power is the use of heat engine or power simultaneously generating electricity and useful heat.

21. Ans: (a)

22. Ans: (d)

23. Ans: (b)

Sol: As the SO_2 pollution level increases, sulphuric acid levels increases and it reaches the earth in the form of Rain known as Acid Rains. Frequent Acid Rains leads to change in colours of leaf i.e. from green to yellow colour known as bleaching or Chlorosis of leaf.

24. Ans: (b)

Sol: Central Pollution Control Board [CPCB] gives advice to central govt concerning prevention and control of water and air pollution.

25. Ans: (b)

Sol: The major causes of desertification are overgrazing, over irrigation, over cultivation, global warming and climate change increases of population.

26. Ans: (d)

27. Ans: (b)

28. Ans: (d)

Sol: Fungi, as a group are heterotrophic organisms with an absorptive mode of nutrition. They can obtain energy and nutrients from all the members of the community.

29. Ans: (a)

30. Ans: (c)

31. Ans: (a)

Sol: Equator receives less insolation than tropic due to heavy cloud covers.

- Insolation is the amount of sunlight received at the surface of earth per unit area.
- Clouds obstruct the sunlight and hence equator receives less insolation.
- Similarly oceans are significantly cloudier than continents and hence receive less insolation.

32. Ans: (a)

Sol:

- Carbon Foot Print is a measure of CO_2 emission from an individual, an organization and industry.
- In any area, if CO_2 emission is equal to absorption then that area is Zero Carbon Foot Print area/Green areas.



- If CO₂ emission is very high than its absorption then it is carbon "+ve" areas.
- If CO₂ emission is very less than its absorption then it is carbon "-ve" areas.

33. Ans: (b)

34. Ans: (a)

Sol: On World Environment Day India has set a goal to eliminate single use plastics by 2022.

- Single use plastics includes-carry bags, straws and water bottles etc.
- Plastic waste has huge impact on marine ecosystem, water bodies and soil, but aquatic ecosystem is highly sensitive.
- The annual average percapita consumption of plastics in India is at 11 kg as against global consumption of 28 kg.

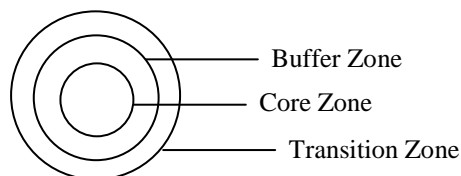
35. Ans: (d)

Sol:

- NGT (National Green Tribunal) is fast tract court, which disposes environment cases in faster manner i.e. within 6 months after coming into its notice.
- Chair person of it will be always retired judge of Supreme Court of India.
- It Protects Art-21 of Indian constitution.

36. Ans: (b)

Sol: These are the only reserves which are the talks about man and environmental relations i.e. Biosphere Reserves promotes man & human relations.



Core zone: No human activities allowed

Buffer zone: Limited Human activities allowed

Transition zone: All Human activities allowed

37. Ans: (b)

38. Ans: (c)

Sol: In the first meeting of ISA held recently in Delhi the following initiatives were taken

1. its main aim is to decarbonizes the electricity sector
2. it is to mobilize 1000 \$b and to install 1 Terra watt by 2030.
3. number of countries for access has increased from 121 to 193 countries.

39. Ans: (c)

Sol: • Coal gas is unconventional gas.

- Plenty of coal gas availability is there in India due to presence of large coal reserves.



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40. Ans: (d)

Sol: Tropical rainforests of India are found in the Andaman and Nicobar Islands, the Western Ghats, which fringe the Arabian Sea, the coastline of peninsular India (south west), and the greater Assam region in the north-east.

41. Ans: (a)

42. Ans: (a)

Sol: Evergreen forest in the world are mostly confined to the tropical regions of the world because of its constant climatical conditions i.e. Rainfall and Temperature.

43. Ans: (a)

44. Ans: (d)

Sol: Indoor Air pollution means increase of pollution level inside the rooms and buildings. It has direct impact on human health hence it is highly dangerous.

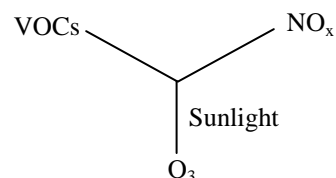
Indoor Air pollution levels are very high in urban areas because of combustion of fossil fuels.

45. Ans: (c)

Sol: Photo chemical smog is also known as Los Angeles smog. The primary pollutant of this smog is O_3 .

It is formed due to oxidation of NO_x and VOCs in presence of sunlight.

Hence, it is photochemical reaction but not thermal reaction.



46. Ans: (d)

Sol: Among all the thermal power plants thermal efficiency of nuclear reaction is very high.

Temp of water generating stream is low because of high pressure in nuclear reactors.

47. Ans: (a)

48. Ans: (b)

49. Ans: (d)

Sol: Water vapour in atmosphere decreases with altitude.

50. Ans: (b)

Sol: CO_2 from the atmosphere is absorbed by the oceans and sea water.

- CO_2 reacts with water forms carbonic acid. As the $CO_2 + H_2O \rightarrow [H_2CO_3]$ Carbonic acid levels increases, resulting in more acidic water with a lower pH.
- Rapid influx of CO_2 in the oceans severely threatens marine life thus decreasing marine biodiversity.

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