

IASbaba Daily Prelims Test [Day 16]

Topic: Soil and Environment (Current Affairs)

1. Khadar soils are preferred over Bhangar soils for crop cultivation because

1. Khadar soil are composed of fine particles than that of Bhangar soil.
2. Bhangar soils lack in kankar nodules.

Choose the correct reason from the codes below.

1. 1 only.
2. 2 only.
3. Both.
4. none of the above.

Answer: 1

Bhangar soils are rich in kankarie calcareous deposits like calcium carbonate.

Second statement is wrong and Bangar soils are rich in kankar nodules ie calcareous deposits. Infactkankar deposits improves soil fertility.

Also that in Khader soils nutrients are renewed every year from flood waters and thus more fertile than Bangar soils which is rarely replenished with nutrients.

2. Why are black soils treated with cement or hydrated lime during Roadways and railways construction? Consider the reasons

1. To overcome problems of volume changes due to alternate expansion and shrinkage of soils.
2. To prevent soil erosion during wet season.
3. To improve bearing capacity of the soil.

Choose the correct reason from the codes below.

1. 1, 2 only.
2. 2, 3 only.
3. 1, 3 only.
4. All the above.

Answer: 4

The cement or lime treatment is being utilized for the following purposes:
To provide a pavement foundation of marginally weaker in strength than that of concrete pavement, but much improved strength than natural Black cotton soil (BC soil).

To consolidate subgrades and base courses for concrete pavement in order to make them resistant to volume changes and displacement or erosion in the presence of moisture even under the rocking action of curled slabs, if any.

To overcome the susceptibility of foundations to volume change and to increase their shearing resistance and bearing capacity.

3. Although laterite soils are formed in regions with high rainfall and high temperature, it requires good dosage of manures. What are the reasons?

1. Intense leaching because of high rainfall.
2. Lack or less availability of humus.

Choose the correct code from the following

1. 1 only.
2. 2 only.
3. Both .
4. None of the above.

Answer: 3

Intense leaching is caused by heavy rainfall which leaches silica and makes soil a bit acidic.

High rainfall also inhibits humus formation with decreased bacterial activity.

4. Left hand side is the region and right hand side is the major reason in that region for soil degradation.

1. Odisha, Jharkhand --- deforestation and mining.
2. Rajasthan, Maharashtra --- over irrigation.
3. Punjab, Haryana --- overgrazing.

Which are correctly matched?

1. 1 only.
2. 1, 2 only.
3. All the above.
4. None of the above.

Answer: 1

Overgrazing is mainly the reason in the western India ie Rajasthan, Maharashtra while over irrigation is the major reason in the North Western India ie Punjab, Haryana.

5. Black soils are known for its fertility with little or no evidence of exhaustion. This is because

1. Black soils with equal proportion of clay, gravel and coarse sand has high moisture retention capacity.
2. Cracks developed during dry season allows oxygenation of the soils.
3. Black soil has low level of kankar thus supports wide variety of crops.

Choose the incorrect reason from the codes below

1. 1 Only.
2. 2, 3 only.
3. 1, 3 only.
4. All the above.

Answer: 3

Black soil is mainly composed of clay , thus it has high moisture retention capacity .

Black soils are in fact rich in kankarnodules which adds to the fertility of the soil.

6. Consider the statements regarding red and yellow soils.

1. Soil looks yellowish when iron diffused in the soil gets hydrated.
2. Red and yellow soils are mainly found in the deltaic regions especially in the Eastern Indian coast.
3. Less fertile coarser soils are found in the uplands while fertile fine soils occur in the low lying regions.

Which are the correct statements?

1. 1 only.
2. 1, 2 only.
3. 1, 3 only.
4. 2, 3 only.

Answer: 3

This type of soils get red colour when iron is diffused in the crystalline and metamorphic rocks. The same soil turns yellow when the iron diffused gets turned into hydrated form. These soils occur generally in the drier regions of Eastern and Southern India and not in the deltaic regions.

7. Consider the following statements regarding a particular soil

1. Found in the summits of Western Ghats, Eastern Ghats, Vindhyas, Sathpuras and Malwa plateau.
2. Subjected to intense leaching and thus not fit for agriculture unless manures and fertilizers are used.
3. It is the end product of weathering process and thus it is indefinitely durable.

Which is the soil that is spoken about in the above statements?

1. Forest soil.
2. Mountain Soil.
3. Laterite soil.
4. Red soil.

Answer: 3

Although first two statements ie 1 and 2 do comply with mountain soil and forest soil, the third statement is unique for laterite soil.

8. Consider the statements regarding salinization which is a one of the major problem, reducing Indian agricultural productivity.

1. In drier regions, capillary action can lead to salt accumulation on the surface of the land which is brought from the deep saline ground water tables.
2. Irrigation can result in salinization of soils.
3. It can occur both naturally as well as artificially.

Choose the correct statements from the codes given below.

1. 1, 2 only.
2. 1, 3 only.
3. 2, 3only.
4. All the above.

Answer: 4

In drier regions wherever salt accumulation has occurred because of capillary action, the salts are brought from the shallow depth where the saline ground water table exists.

Salination can be caused by natural processes such as mineral weathering or by the gradual withdrawal of an ocean. It can also come about though artificial processes such as irrigation.

Salinity from irrigation can occur over time wherever irrigation is used, since almost all water (even natural rainfall) contains some dissolved salts. When the plants use the water, the salts are left behind in the soil and eventually begin to accumulate.

9. The soil salinization occurred due to irrigation is a concern in drier regions and not in humid regions. Consider the following statements

1. In humid regions, there is enough precipitation to leach (wash) the salts below the plant root zone.
2. In drier regions, higher temperature leads to higher evaporation of water resulting into leaving behind of salt on the surface of the soil.
3. Soil salinization occurring due to irrigation can equally impact both humid areas as well as drier areas.

Choose the correct statement from the code given below

1. 1, 2 only.
2. 1 only.
3. 2 only.
4. 3 only.

Answer: 1

10. Laterite soils and Forest soils are acidic in nature. What is the reason for this?

1. High rainfalls leach away the cations into sub soil region.
2. Trees and plants absorb the cations necessary for their development.
3. Cations are washed away along with running water and drained into sea/ocean.
4. None of the above reasons are correct.

Answer: 1

Water from rain, flooding, or other sources seeps into the ground, during which it can dissolve chemicals and carry them into the underground water supply. Thus, also causing ground water contamination.

Current Affairs- Environment

11. Consider the statements about adaptation in the animals leading a subterranean mode of life:

1. Digging organs for food
2. Special body contour to increase metabolism
3. Neck and pinnae are reduced to avoid obstruction in quick movement through the holes

Select the correct code:

1. 1 Only
2. 2 Only
3. 1 and 2 Only
4. 1 and 3 Only

Solution: 4

The body contour is cylindrical, spindle-shaped, or fusiform (e.g., earthworms, moles, badgers) so as to reduce resistance in subterranean passage.

12. Consider the statements regarding desert adaptation

1. Hygroscopic skin to absorb moisture
2. Large pinnae to function as efficient heat radiators
3. Impermeable skin

Select the correct code:

1. 1 Only
2. 1 and 2 Only
3. 1 and 3 Only
4. All of the above

Solution: 4

13. Consider the statements- Acid rain results into

1. Deterioration of Forests
2. Destruction of Automotive coating.
3. Reduction of Photosynthetic rate
4. Increase methane emission from wetlands.

Select the correct code:

1. 1 and 2 Only
2. 1, 2 and 3 Only
3. 1, 3 and 4 Only
4. All of the above

Solution: 2

Wetland soils also contain sulfur-loving archaea, which are single-celled organisms that use sulfur for energy production. They compete with the methane producing microbes. In areas where there is a significant amount of acid rain, scientists have shown that these sulfur archaea out-compete the methane-producing microbes, thereby decreasing the methane output in these areas significantly.

14. Choose the right one about oil spill

1. It reduces Photosynthetic activities in water bodies.
2. It results into killing of birds and mammals that die of hypothermia
3. Food web of water bodies gets even more complex

Select the correct code:

1. 1 Only
2. 1, 2 Only
3. 1, 3 Only
4. All of the above

Solution: 2

Oil spill can prove fatal for plant, animal and human life. The substance is so toxic that it can cause massive loss of species (food web will get simplify) that live in the sea. Oil spill penetrates into the plumage and fur of birds, breaks down the insulating capabilities of feather which makes them heavier, disallow them to fly and kill them via poisoning or hypothermia.

<http://www.conserve-energy-future.com/effects-of-oil-spills.php>

15. Out of initiatives given below which will prove to be factors having positive impact on menace of global warming.

1. Eastern Dedicated Freight Corridor (DFC) Project
2. Digital India.
3. Campaign stressing on use of LED bulbs
4. "Give it up" campaign.

Select the correct code:

1. 1 and 2 Only
2. 1, 2 and 3 Only
3. 1, 3 and 4 Only
4. All of the above

Solution: 3

16. What are the factors for extinction of wildlife throughout the world

1. Alteration of habitat.
2. Indroduction of foreign species.
3. Control of pests and predators.
4. Captive breeding

Select the correct code:

1. 1and 2 Only
2. 1, 2 and 3 Only
3. 1, 3and 4 Only
4. All of the above

Solution: 2

Predators or pests are important biotic components of the ecosystem. Natural predators make the prey population stronger by removing weak members of the prey population but human beings generally remove the strongest specimens. Captive breeding is for conservation of troubled species (a measure to safeguard wildlife)

17. Consider the statements:

1. Elephant Information Network (EIN) has enabled human-elephant coexistence in southern India
2. Recently, Dr. Pramod Patil was awarded for developing Elephant Information Network (EIN)

Select the correct code:

1. 1 Only
2. 2 Only
3. Both
4. None

Solution: 1

Dr. Pramod Patil was awarded for his work to protect great Indian bastard.

18. Read the different terms given below and select one or more that sequestrate the atmospheric green house gases:

1. Black Carbon
2. Brown Carbon
3. Blue Carbon
4. Green Carbon

Select the correct code:

1. 4 Only
2. 2 and 4 Only
3. 3 and 4
4. None

Solution: 3

Black Carbon: - emitted mainly by high-temperature combustion processes (diesel engines, etc.) give way to more green house effect

Brown Carbon: - emitted mainly by biomass combustion

Green Carbon: - Carbon used by the plants for photosynthetic activities

Blue Carbons: - it refers to carbon that is held by coastal and marine vegetation (it also includes carbon held by marine organism and sediments)

19. Addition of iron particle to ocean will result into:

1. Increase in Marine Biological Productivity.

2. Increase in carbon dioxide in atmosphere by degassing.
3. Decrease in Sea Surface temperature.

Select the correct code:

1. 1 and 3 Only
2. 2 and 3 Only
3. All of the above
4. 4 only

Solution: 1

Addition of iron particles to sea or ocean results into growth of phytoplankton as they prefer iron. Phytoplankton role in absorbing carbon dioxide from atmosphere has been documented in various research works. Sea surface temperature will fall as atmosphere will witness decrease in carbon dioxide in atmosphere. Addition of iron particles is geo-engineering process. It has been suggested by many experts to control the menace of global warming with other ways like artificial trees, parasol etc.

20. What is/are implicitly/explicitly related to wetland management?

1. Convention on biological diversity (CBD).
2. Montreux Record.

3. Hyogo framework of action.

Select the correct code:

1. 1 and 3 Only
2. 2 and 3 Only
3. All of the above
4. 4 only

Solution: 3

Hyogo framework of action is related to disaster risk management. It talks about developing resilient ecosystem. Standing mangroves forests act as resilient wall for tsunami. These forests have a complicated network of tree arrangement that, to good extent help in resisting the entry of waves from ocean.

http://www.ramsar.org/sites/default/files/documents/pdf/moc/CBD-Ramsar5thJWP_2011-2020.pdf

21. Indian Green Building Council (IGBC) New Green Buildings rating system addresses green features under certain categories. What are they?

1. Site selection and planning

2. Innovation and Development

3. Water Conservation

4. Energy Efficiency

Select the correct order

1. 1 and 2
2. 2 and 3
3. 1, 3 and 4
4. All

Solution- 4

Other categories include

- Sustainable Architecture and Design
- Building Materials and Resources
- Indoor Environmental Quality

22. Canary birds are used as early warning system in coal mines. What are the reasons for this?

1. They are able to detect the presence of toxic gases like carbon monoxide.

2. Their breathing rate is slow as compared to human that helps them to reach to the depth of mines
3. They have high metabolism

Select the correct code

1. Only 1
2. 2 and 3
3. 1 and 3
4. All

Solution- 3

Canary birds were recently relieved from being used as an early warning system in coal mines. With the advent of a range of portable electronic toxic gas detectors, the canaries are now set free and relieved from the dangerous job that they had been doing in the coalmines of the Kothagudem region of Singareni Collieries Company Ltd. With the company introducing state-of-the-art handheld gas detectors with sensors and alarm systems for deep excavation, the birds are no longer called in to play the role of an early-warning system for carbon monoxide and other toxic gases in the mines.

The reasons for their use was- The rapid breathing rate, small size and high metabolism of the canaries make them die before miners do on inhaling toxic gases. The men can then be quickly evacuated. The canaries used to be carried in cages and miners had to look for distress signs in the birds.

23. Consider the following with respect to Western Ghat and rainfall pattern along it

1. Karnataka receives more rainfall than Kerala and Maharashtra because of steep slopes and continuous Mountains
2. The mountain topography in Karnataka is broader than the narrow topography of the Ghats in Maharashtra and Kerala.

Select the incorrect statements

1. Only 1
2. Only 2
3. Both
4. None

Solution- 1

There are several reasons for this. **First, the mountain topography in Karnataka is broader than the narrow topography of the Ghats in Maharashtra.** Due to the greater width of the mountains, the rain bearing winds have to necessarily travel a longer distance and have more time for the drops to coalesce and precipitate as rainfall, resulting in higher rainfall. In contrast, the narrow width of the Ghats in Maharashtra allows the rain-bearing wind to cross over to the leeward side rapidly before precipitation can occur. As for Kerala, the Ghats there are in the form of isolated mountains, where the rain-bearing winds can easily cross over to the leeward side through the gaps in between without precipitation occurring.

Second, the slope of the mountain has a direct bearing on the possibility of precipitation. This is borne out by the Ghats of Karnataka where the mountains are gently sloping, compared to the steep slopes of the Ghats in Maharashtra and Kerala.

The air parcel will retain its energy and speed for a longer time when the slope is gradual. This will provide sufficient vertical motion to cloud droplets to grow by collision–coalescence process and hence form precipitation.

Third, the gentle slope provides a greater area for sunlight absorption and heating leading to greater convection when compared with an abrupt slope i.e. less Ghat area such as that of the Maharashtra and Kerala Ghats.

Fourth, the continuous mountain range presents a greater barrier to rain-bearing winds than a range comprising isolated mountains with gaps in between where the winds can easily pass to the leeward side. Unlike in the case of Kerala, the Ghats in Maharashtra and Karnataka are continuous.

24. Among the following that has major content of carbon

1. Soil
2. Forests
3. Ocean
4. Atmosphere

Solution- 1

25. Consider the statements regarding Biosequestration

1. Biosequestration is an artificial process that captures and stores the atmospheric greenhouse gas carbon dioxide by biological processes.
2. Biosequestration is a natural process responsible for the formation of the extensive coal and oil deposits which are now being burned.

Select the correct code

1. Only 1
2. Only 2
3. Both
4. None

Solution- 2

Biosequestration is the capture and storage of the atmospheric greenhouse gas carbon dioxide by biological processes. (Natural)

Second statement is right.

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