

IASbaba's Daily Prelims Test [Day 60]

Topic- Environment, S&T and Current Affairs

**1. The Millennium Ecosystem Assessment describes the following major categories of ecosystem services—provisioning, supporting, regulating, and cultural. Consider the following**

1. Genetic resources, water and minerals are part of supporting ecosystem services
2. Nutrient recycling, primary production and soil health are part of regulating ecosystem services
3. Raw materials and Energy are part of provisioning ecosystem services

**Select the correct answer using codes**

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

Solution- 2

**Supporting services**

Ecosystem services "that is necessary for the production of all other ecosystem services". These include services such as nutrient recycling, primary production and soil formation. These services make it possible for the ecosystems to provide services such as food supply, flood regulation and water purification.

**Provisioning services**

"Products obtained from ecosystems"

1. food (including seafood and game), crops, wild foods, and spices
2. raw materials (including lumber, skins, fuel wood, organic matter, fodder, and fertilizer)
3. genetic resources (including crop improvement genes, and health care)
4. water
5. minerals (including diatomite)

6. medicinal resources (including pharmaceuticals, chemical models, and test and assay organisms)
7. energy (hydropower, biomass fuels)
8. ornamental resources (including fashion, handicraft, jewelry, pets, worship, decoration and souvenirs like furs, feathers, ivory, orchids, butterflies, aquarium fish, shells,

### **Regulating services**

"Benefits obtained from the regulation of ecosystem processes"

1. carbon sequestration and climate regulation
2. waste decomposition and detoxification
3. purification of water and air
4. pest and disease control

### **Cultural services**

"Nonmaterial benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences"

1. cultural (including use of nature as motif in books, film, painting, folklore, national symbols, architect, advertising, etc.)
2. spiritual and historical (including use of nature for religious or heritage value or natural)
3. recreational experiences(including ecotourism, outdoor sports, and recreation)
4. science and education (including use of natural systems for school excursions, and scientific discovery)

**2. What would happen if phytoplankton of an ocean is completely destroyed for some reason?**

1. The ocean as a carbon sink would be adversely affected.
2. The food chains in the ocean would be adversely affected.
3. The density of ocean water would drastically decrease.

**Select the correct answer using the codes given below**

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

Solution- 3

Density is independent of phytoplankton

**3. Polymetallic nodules are rock concretions on the sea bottom formed by layers of certain minerals. Consider the following**

1. Magnesium
2. Manganese
3. Nickel
4. Oxygen
5. Sodium
6. Iron
7. Potassium

**Which of the above are major constituents of polymetallic nodules?**

1. 1, 3 and 4
2. 1, 2, 3, 4, 5, 6 and 7
3. 2, 3 and 6
4. 1, 2, 3, 4, 5 and 6

Solution- 3

Manganese (27-30%), nickel (1.25-1.5 %), copper (1-1.4 %) and cobalt (0.2-0.25 %).

Other constituents include iron (6%), silicon (5%) and aluminium (3%).

Lesser amounts of calcium, sodium, magnesium, potassium, titanium and barium, along with hydrogen and oxygen

**4. Consider the following**

1. International Space Station
2. Antarctic
3. Outer Space
4. Arctic

**What constitutes Global Commons?**

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

Solution- 2

ISS and Arctic- Governed by States

**5. Which is 'doubly landlocked country'?**

1. Kazakhstan
2. Uzbekistan
3. Afghanistan
4. Tajikistan

Solution- 2

A country is "doubly landlocked" or "double-landlocked" when it is surrounded entirely by one or more landlocked countries (requiring the crossing of at least two national borders to reach a coastline).

There are currently only two such countries:

**Liechtenstein** in Central Europe, surrounded by Switzerland and Austria and **Uzbekistan** in Central Asia surrounded by Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, and Turkmenistan

**6. Which one of the following statements is correct?**

1. Tadpoles have gills
2. Fishes eat only animal matter
3. Heart is three-chambered in tadpoles
4. All fishes have swim bladders

Solution- 1

**7. Which one of the following pairs of power projects is not correctly matched?**

1. Ukai- Thermal Power
2. Papansam- Hydropower
3. Baira Suil- Wind Power
4. Kaiga- Nuclear Power

Solution- 3

Baira Suil- Hydro Power

**8. Consider the following statements**

1. The earth does not move along its orbit at a constant rate.
2. The earth moves fastest at perihelion and slowest at aphelion.

**The above statements are true of which one of the following laws?**

1. Kepler's 2<sup>nd</sup> law
2. Kepler's 3<sup>rd</sup> law
3. Kepler's 1<sup>st</sup> law
4. Newton's law of gravitation

Solution- 1

Kepler's second law - sometimes referred to as the law of equal areas - describes the speed at which any given planet will move while orbiting the sun. The speed at which any planet moves through space is constantly changing. A planet moves fastest when it is closest to the sun and slowest when it is furthest from the sun. Yet, if an imaginary line were drawn from the center of the planet to the center of the sun, that line would sweep out the same area in equal periods of time. For instance, if an imaginary line were drawn from the earth to the sun, then the area swept out by the line in every 31-day month would be the same.

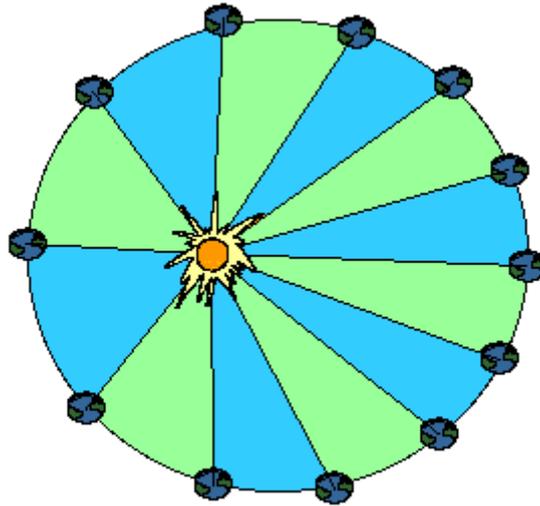
**Perihelion- Closest to its start**

**Aphelion- Farthest**

This is depicted in the diagram below. As can be observed in the diagram, the areas formed when the earth is closest to the sun can be approximated as a wide but short triangle; whereas the areas formed when the earth is farthest from the sun can be approximated as a narrow but long triangle. These areas are the same size. Since the base of these triangles are shortest when the earth is farthest from the sun, the earth would have to be moving more

slowly in order for this imaginary area to be the same size as when the earth is closest to the sun.

**The Law of Equal Areas**



**An imaginary line drawn from the sun to any planet sweeps out equal areas in equal amounts of time.**

**9. When a moving bus suddenly applies brakes, the passengers sitting in it fall in the forward direction. This can be explained by**

1. Newton's 1<sup>st</sup> law
2. Newton's 3<sup>rd</sup> law
3. Law of momentum
4. The theory of relativity

Solution- 1

**10. Flint glass is obtained from which of the following**

1. Zinc and Barium borosilicate
2. Sodium aluminium borosilicate
3. Sand, Lead oxide and potassium carbonate
4. Pure silica and zinc oxide

Solution- 3

Flint- Lead Crystal, remember lead oxide

**11. Consider the following**

1. Mining
2. Gravitational Energy
3. Volcanic eruption
4. Earthquake waves

**Which of the above gives direct source of information about interior of Earth?**

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

Solution- 3

Gravitational energy and earthquake waves are indirect source.

**12. A magnetic substance can be demagnetized by**

1. Heating till a temperature known as Curie temperature is reached
2. Placing the substance in a direction opposite to that of the Earth's horizontal intensity
3. Heating or hammering

**Select the correct answer using codes**

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

Solution- 2

Heating the substance past its curie temperature

**13. Gout, a metabolic disease occurs due to high level of**

1. Sugar in the blood
2. Urea in the blood
3. Uric acid in the blood
4. Cholesterol in the blood

Solution- 3

**14. The term 'Evolutionary Significant Unit' can be applied to**

1. Population
2. Geographical Race
3. Species
4. Subspecies

**Select the correct codes**

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

Solution- 3

[https://en.wikipedia.org/wiki/Evolutionarily\\_Significant\\_Unit](https://en.wikipedia.org/wiki/Evolutionarily_Significant_Unit)

**15. Consider the following statements**

1. Edge effects refer to the changes in population or community structure that occur at the boundary of two habitats.
2. As the edge effects increases, the boundary habitat allows for lower biodiversity
3. The edge effects can result into abiotic and biotic conditions which diminish natural variation and threaten the original ecosystem

**Select the correct answer using codes**

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

Solution- 3

It allows for greater biodiversity

**16. Cloudy nights are warmer than clear nights because of**

1. Green house effect
2. Terrestrial Radiation
3. Insolation
4. Depletion of ozone layer

Solution- 2

**17. Which of the following statements is/are correct regarding fat?**

1. Fats are required for repair of damaged tissue
2. They help in absorbing calcium from food
3. They are needed for the formation of cell membrane
4. Body cannot release energy in the form of fats as easily as in the form of carbohydrates

**Select the correct codes**

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

Solution- 4

**18. Which of the following methods are suitable for soil conservation in hilly areas?**

1. Terrace farming
2. Strip cropping
3. Contour ploughing
4. Contour Bunding

**Select the correct code**

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

Solution- 1

**19. Which of the following are chief characteristics of commercial grain farming of middle latitude grassland?**

1. Large farmlands
2. Subsistence farming
3. Low mechanized

**Select the correct code**

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

Solution- 1

Highly mechanized and extensive farming

**20. Consider the following**

1. Wood
2. Silk
3. Limestone
4. Coal
5. Oil
6. Grass

**Which of the above are examples of Biogenic Substance?**

1. 3, 4 and 5
2. 1, 2, 4 and 6
3. 1, 2, 3, 4, 5 and 6
4. 4 and 5

Solution- 3

A biogenic substance is a substance produced by life processes. It may be either constituents, or secretions, of plants or animals. A more specific name for these substances is biomolecules.

**Example**

1. Coal and oil are possible examples of constituents which may have undergone changes over geologic time periods.
2. Chalk and limestone are examples of secretions (marine animal shells) which are of geologic age.
3. grass and wood are biogenic constituents of contemporary origin.
4. Pearls, silk and ambergris are examples of secretions of contemporary origin

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