

1.The Miyawaki method recently seen in news is related to,

- a) Dense plantation of very young seedlings
- b) Growing of plants without soil
- c) Dripping of water directly to the roots
- d) Climate controlled growth of plants

Answer: A

Explanation:

Miyawaki Method

Miyawaki is a Japanese technique of growing dense plantations in a short time. This method originated in Japan and is now increasingly adopted in other parts of the world. It is named after the Japanese botanist and plant ecologist Akira Miyawaki. This method includes planting trees, only native species, as close as possible in the same area. The approach ensures that plant growth is 10 times faster and the resulting plantation is 30 times denser than usual.

Miyawaki Process:

- The native trees of the region are identified and divided into four layers namely shrub, sub-tree, tree, and canopy.
- The quality of soil is analysed water retention capacity, and nutrients in it, is mixed with it.
- A mound is built with the soil and the seeds are planted at a very high density of three to five saplings per square meter.
- The ground should be covered with a thick layer of mulch. These trees lack some qualities of natural forests, such as medicinal properties and the ability to bring rain.
- Such fast-growing plantations can be used for wood lots, recreational uses like bird watching, bushwalking, and wildflower appreciation.

Statement b refers to Hydroponics Method

- It is a method of growing plants without soil in which plants get their nutrients from a mineral solution.

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- The method is suitable for growing greens and herbs as they don't have deep roots. Tomatoes and strawberries are other popular items.

Statement c refers to Drip Irrigation

- It is a type of micro-irrigation system that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants, either from above the soil surface or buried below the surface.

Statement d refers to GreenHouse and PolyHouse Method

- **Green houses** are climate controlled with cooling and heating system. It is mainly used to grow exotic vegetables, off-season growing of vegetables, floriculture, planting material acclimatization and plant breeding and varieties improvement under adverse agro-climatic conditions.
- Poly house is a less sophisticated version of green house with naturally ventilated climate controlled as against the fully climate controlled greenhouses.

2. Consider the following statements about Asia Pacific Economic Organisation(APEC)

- 1) It is a regional economic forum established to leverage the growing interdependence of the Asia-Pacific.
- 2) India is a member of APEC.

Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

Answer: A

Explanation: Statement 1 is correct.

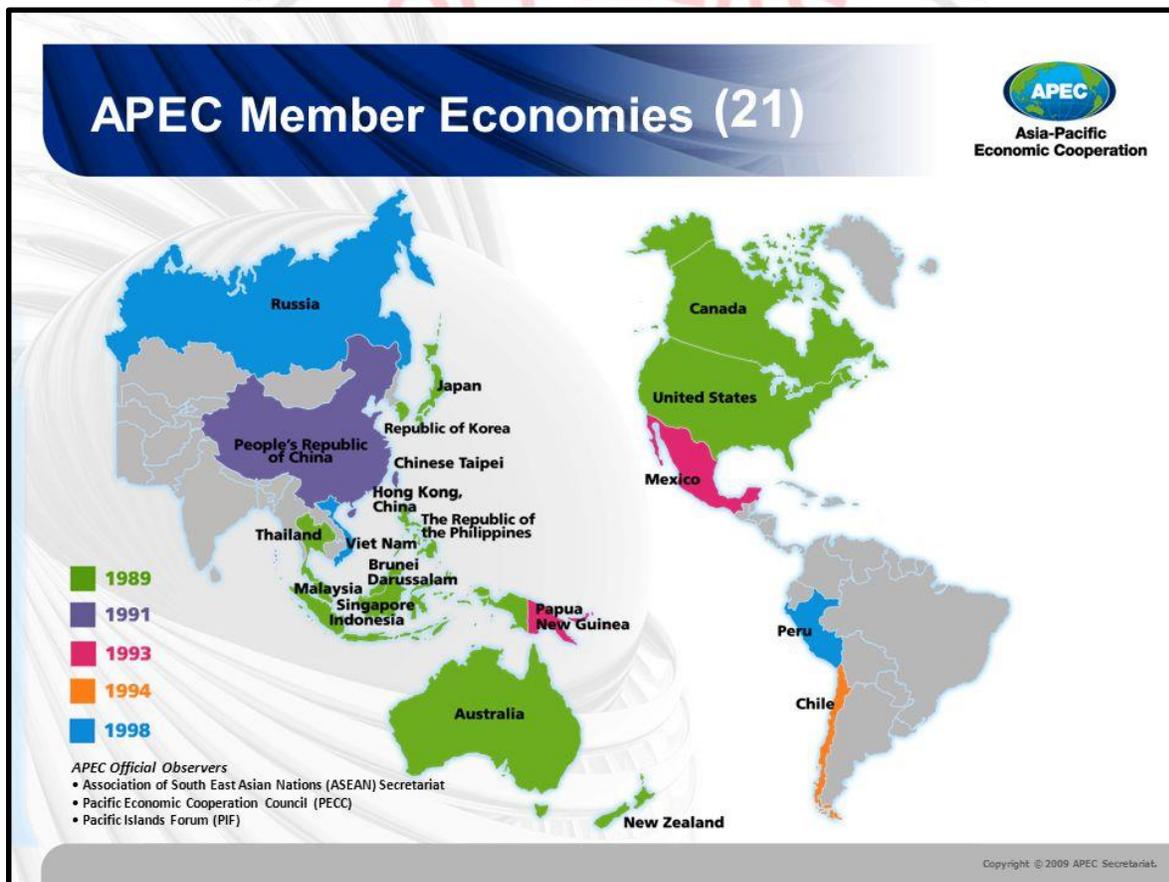
- The Asia-Pacific Economic Cooperation (APEC) is a regional economic forum established in 1989 to leverage the growing interdependence of the Asia-Pacific. It operates as a **cooperative, multilateral economic and trade forum.**

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- It is the only international intergovernmental grouping in the world committed to reducing barriers to trade and investment without requiring its members to enter into legally binding obligations.
- APEC achieves its goals by promoting dialogue and arriving at decisions on a consensus basis, giving equal weight to the views of all members.
- APEC's aim is to create greater prosperity for the people of the region by promoting balanced, inclusive, sustainable, innovative and secure growth and by accelerating regional economic integration.

Statement 2 is incorrect: India is not a member of APEC.



3. Which of the following industries are mandated to get Environmental Impact Assessment?

1. Pulp, paper and newsprint

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2. Synthetic Rubber
3. River Valley Projects
4. Cement
5. Nuclear Power projects

Select the correct answer using the codes given below

- a) 3 and 5 only
- b) 1,3,4 and 5 only
- c) 2,4 and 5 only
- d) 1,2,3,4 and 5

Answer: D

Explanation:

Environmental Impact Assessment is a tool designed to identify and predict the impact of a project on the bio-geophysical environment and on man's health and well-being, to interpret and communicate information about the impact, to analyze site and process alternatives and provide solutions to sift out, or abate/mitigate the negative consequences on man and the environment. EIA was made mandatory in 1994 under the Environmental Protection Act of 1986 with the following four objectives:

- Predict environmental impact of projects;
- Find ways and means to reduce adverse impacts;
- Shape the projects to suit local environment; and
- Present the predictions and options to the decision-makers.

Few industries that are mandated to get EIA include:

- Pulp, paper and newsprint
- Synthetic Rubber
- River Valley Projects
- Cement
- Nuclear Power projects
- Mining of minerals including Opencast/Underground mining
- Leather/skin/hide processing industry
- Air ports
- Highways, railways, transport terminals, mass rapid transport systems etc..

Benefits of EIA:

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- EIA links environment with development for environmentally safe and sustainable development.
- EIA provides a cost effective method to eliminate or minimize the adverse impact of developmental projects.
- EIA enables the decision makers to analyse the effect of developmental activities on the environment well before the developmental project is implemented.
- EIA encourages the adaptation of mitigation strategies in the developmental plan.

4. The term 'biological carbon pump' is related to which of the following?

- a) Transformation of CO₂ into organic carbon and its sinking into deep ocean
- b) Forests absorbing carbon from the atmosphere
- c) Process of obtaining carbon by thermally decomposing acetylene gas
- d) Cultivating plants with high CO₂ absorption

Answer: A

Explanation:

What is the biological carbon pump?

- Just like plants on land, the microscopic marine phytoplankton take up carbon dioxide [CO₂] and water [H₂O] from their surrounding and use energy from sunlight to turn it into glucose [C₆H₁₂] and oxygen [O₂].
- The glucose powers the metabolism of the plankton cells, and can be turned into other organic compounds.
- If enough nutrients are available the plankton will grow and multiply.
- Phytoplankton are the 'grass of the sea' - at the bottom of the marine food chain. Respiration by animals, bacteria and plants 'remineralised' the organic carbon - turning it back into carbon dioxide and water.
- When plants and animals die their remains sink into deeper water as detritus and decompose, releasing carbon dioxide and nutrients back into the water.
- This is why nutrients such as nitrate are scarce in surface water, but found in much higher concentrations in the deep ocean.
- The transformation of carbon dioxide and nutrients into organic carbon, its sinking into the deep ocean, and its decomposition at depth, is known as the **biological carbon pump**.

The 'biological carbon pump' (BCP) contributes to the ocean's role in taking up and storing carbon dioxide from the atmosphere. Without the BCP the atmospheric concentration of CO₂ would be much higher.

Statement c refers to Acetylene Black Process

This process obtains carbon black by thermally decomposing acetylene gas. It provides carbon black with higher structures and higher crystallinity, and is mainly used for electric conductive agents.

5. Which of the following pairs is/are correctly matched?

- 1) Nameri National Park – Assam
- 2) Kaziranga National Park – Assam
- 3) Singalila National Park – Himachal Pradesh

Which of the above statements is/are correct?

- a) 1 and 2 only
- b) 2 and 3 only
- c) 1 and 3 only
- d) All of the above

Answer: A

Explanation:

- Singalila National Park is a national park of India located on the Singalila Ridge at an altitude of more than 7000 feet above sea level, in the Darjeeling district of West Bengal.

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